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**FINANCIAL DEREGULATION
WITH A FIXED EXCHANGE RATE:
LESSONS FROM NORWAY'S
BOOM-BUST CYCLE AND
BANKING CRISIS**

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Financial Deregulation with a Fixed Exchange Rate: Lessons from Norway's Boom-Bust Cycle and Banking Crisis^{*}

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Abstract

The Norwegian 1991-1992 banking crisis was the first manifestation that something had gone terribly wrong in the previously very stable and well-run Nordic economies. This paper compares the Norwegian boom-bust cycle, macroeconomic policies and the banking crisis with what happened in Sweden and Finland shortly afterwards. The deregulation of the credit market triggered a lending boom that made the Norwegian economy very vulnerable to adverse shocks when the exchange rate was fixed. We argue that the pro-cyclical monetary policy due to the fixed-exchange-rate regime was one of several important factors explaining the weak performance of the Norwegian economy, the deep decline in real estate prices, and the banking crisis.

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1 INTRODUCTION

The Norwegian 1991-1992 banking crisis was a dramatic manifestation that something had gone terribly wrong in the previously very stable and well-run Nordic economies. As the problems in the Norwegian banking sector escalated in 1989-1991, most observers thought that this was a uniquely Norwegian phenomenon, caused by idiosyncratic factors such as widespread bank management failure after the financial deregulation process was accelerated in 1984-1985, as well as the political failure to use fiscal policy counter-cyclically to prevent excessive aggregate demand from being built up in 1985-1986. Now, more than ten years after the banking crisis, we know that the Norwegian boom-bust cycle and banking crisis were far from unique happenings. Sweden and Finland experienced even more dramatic boom-bust cycles, banking crises and speculative attacks on the fixed exchange rate what Norway had been exposed to. Moreover, in emerging market economies, there have been several recent examples of financial crises involving speculative attacks on fixed exchange rates and depressions in the wake of financial liberalization and lending booms, for example in Mexico, East Asian and Argentina. Lending booms triggered by financial deregulation do not have to end in a crisis, however. On the contrary, cross-country studies suggest that although a lending boom typically follows financial liberalization, most lending booms end with a “soft landing” and no financial crisis, see for example Gourinchas et al. (2001). Therefore, an important question is why the business cycle downturns were so severe in Norway, Sweden and Finland as to trigger systemic banking crises.

This paper offers a fresh look at the Norwegian boom-bust cycle and banking crisis in the light of what happened in the other Nordic and other countries that have deregulated their financial markets and capital accounts.¹ The Norwegian boom-bust cycle and banking crisis appear to be surprisingly similar to what happened in Finland and Sweden a couple of years later, see Jonung, Kiander and Vartia (2002), Englund (1999), and Englund and Vihriälä (2002). There are interesting differences though. Most noteworthy, the economic crisis in Norway was not as severe as those in Finland and Sweden.² It also took a much longer time

¹ For a comparison between the East Asian and the Nordic crisis, see Kokko and Suzuki (2003).

² See Bergman (2003). Jonung and Hagberg (2003) compare the costs of the Swedish and Finnish economic crises using estimates of output foregone. They find that the economic crisis in Finland was much more costly than the

for the banking crisis to materialize in Norway after the peak of the business cycle compared to what was the case in Finland and Sweden, and in the end, the net fiscal cost of the Norwegian government's rescue operation appears to be *negative* in present value terms. Still another difference is that the speculative attack on Norway's fixed exchange rate took place *after* those in Finland and Sweden, whereas the Norwegian boom-bust cycle and banking crisis were leading the corresponding events in Sweden and Finland by several years.

In order to understand the Norwegian financial and economic crises, answering the following question is crucial: Why did the previously very stable Norwegian economy become so unstable in the 1980s and early 1990s? To address this question, we take a closer look at important macroeconomic shocks as well as factors that may explain a change in the propagation mechanism of business cycles after the financial deregulation. We also discuss the role of fiscal and monetary policy, in particular the pro-cyclical monetary policy due to the fixed- exchange-rate regime.

In addition, there are also more specific issues that we intend to address in what follows:

- Was the financial deregulation policy itself poorly designed?
- Does widespread bank management failure alone explain the large losses that triggered the banking crisis?
- Could the prudential supervision authorities have prevented the banking crisis?
- Was there a credit crunch?
- How successfully did the government handle the banking crisis in 1991-1992?
- How significant was the speculative attack on the currency in December 1992?

A well-known difficulty when addressing questions about the relative importance of various factors and causes is the *identification problem*. It is not sufficient just to look closely at what happened because the data are consistent with several reasonable stories explaining the events that unfolded. Ideally, one needs a good structural quantitative model with which to run counterfactual experiments. There are in fact some papers that have used a macro-econometric model of the Norwegian economy to analyze business cycles in the 1980s and 1990s, see for example Johansen and Eika (2000). However, existing large-scale macro-econometric models have also been subject to critique. In particular, the practice of

crisis in Sweden. Although similar calculations have not yet been done in Norway, the cost is probably smaller in Norway than in Sweden.

identifying shocks through exclusion restrictions may not be consistent with economic theory on how shocks are influencing the economy.³ There is also another problem with large-scale macro-econometric models estimated on data before the financial deregulation. Typically, important behavioral equations tend to break down. Indeed, the dramatic drop in the savings rates of households in Norway, Sweden and Finland was impossible to predict in advance with econometric consumption functions estimated on older data. Neither was previously estimated investment equations performing satisfactory during the boom-bust cycle.

The identification problem could be regarded as a failure of macroeconomic theory. Before the Nordic crisis, almost no attention had been paid to lending booms and financial crises in macroeconomic theory, apart from the destabilizing role of bank runs for the supply of inside money emphasized by Milton Friedman and others.⁴ This theoretical void may explain why nobody foresaw the strong business cycle impulses released by the financial deregulation and the escalating problems in the Nordic banking industry. Since then, an upsurge of international theoretical and empirical research has cast new light on financial instability and the interactions between the financial sector, asset markets and the real economy during boom-bust cycles. Although many questions are not yet settled in the international research in this area, the recent literature gives a far better theoretical and empirical basis for understanding the main causes of the Norwegian problems than what was the case in the early 1990s.

Another advantage is that empirical research on data after the boom-bust cycle has brought forward new information about interest sensitivity of aggregate demand and the effects of monetary policy. In the 1980s, econometricians had a hard time finding *any* interest rate effects at all in their econometric investigations of private consumption and investment in Norway. Such findings may explain why many believed that the real interest rate was not

³ For an alternative VAR-analysis of Norwegian business cycles, see Bjørnland (2000a, 2004). This analysis highlights the asymmetric nature of the oil price shocks for Norway.

⁴ A notable exception is Minsky (1977). Minsky's financial instability hypothesis plays an important role in Kindleberger's (1978) famous review of historical episodes of financial crises. For a review of older literature, see Mullineux (1990). It is fair to say that postwar Keynesianism downplayed Keynes' own ideas about financial instability due to shifting expectations, uncertainty and speculation. Also the debt-deflation hypothesis by Irving Fisher (1933) was largely ignored until its revival in the 1990s. In the older literature on trade cycles, however, financial instability and banking crises played a much more prominent role, see Haberler (1958). According to John Stuart Mill (1867), trade and credit cycles have basically moral and psychological causes, leading to speculation in commodities often backed by "irrational extension of credit". He claimed that a sudden increase in the demand for credit would occur quite regularly (about every ten years), followed by destruction of credit. The credit cycle upturn breeds optimism with turns into "recklessness" and leads to a crisis. Also Marshall and Marshall (1879) emphasize the relationship between economic crises and "reckless" extension of credit.

important for aggregate demand and that monetary policy was ineffective. This view has now changed.⁵ Norway adopted inflation targeting in 1999.⁶ The interest setting of Norges Bank appears to have significant and predictable effects on aggregate demand, just as in other inflation targeting countries. This information allows us to look back on the Norwegian boom-bust cycle with a better understanding of the importance of the real interest rate. In addition, since then Norway has experienced a new boom in 1995-1998 involving rapidly increasing real housing prices and a substantial rate of real credit growth. This time, the boom ended without a bust, and no abnormal bank losses were recorded.⁷ Comparing the previous business cycle with the next one may help to identify the crucial factors that explain the macroeconomic instability and stabilization policy failure of the former.

And finally, we now know a great deal more about what happened in the other Nordic countries. This helps us to look for common explanatory factors as well as to account for interesting differences. Such comparisons also reduce the identification problem. More formal quantitative analysis of the Nordic business cycles and interactions between the real and the financial sectors must however be left for future work.

Most of previous research on the Norwegian crisis has focused on the banking sector and the causes of the banking crisis, see for example Steffensen and Steigum (1991), Johnsen et al. (1992), Steigum (1992), Berg (1993, 1997), Drees and Pazarbasioglu (1998), as well as books on the two largest commercial banks in Norway by Knutsen, Lange and Nordvik (1998), and Lie (1998). Papers that have looked more closely at macroeconomic policies and the boom-bust cycle include Steffensen and Steigum (1991), Steigum (1992), Rødseth (1994), and Hove and Moum (1997) and Drees and Pazarbasioglu (1998). Although the latter papers agree on a number of issues, there is no strong consensus in regard to the importance of the fixed exchange rate policy for the boom-bust cycle and the banking crisis.

For example, the influential paper by Drees and Pazarbasioglu (1998) on the Nordic banking crises does not explicitly discuss the role of the fixed exchange rates for the pro-cyclical monetary policy, but criticizes the governments for too expansionary fiscal policies,

⁵ Eika and Hove (1994) report increased interest rate sensitivity of aggregate demand using data after 1986.

⁶ On March 29, 2001, Norges Bank received a new set of guidelines for monetary policy, involving an operational inflation target of 2.5 percent, but already in January 1999, Norges Bank began to set its interest rates in accordance with an inflation-targeting framework for monetary policy. For a recent evaluation of Norwegian monetary policy, see Svensson et al. (2002).

inadequate prudential supervision and poorly prepared financial deregulations.⁸ In contrast, in this paper we argue that the fixed exchange rate policy and the pro-cyclical monetary policy are crucial in explaining the astonishing macroeconomic instability in Norway after the deregulation of credit markets and capital accounts. This combination undermined the stability of the Norwegian economy and made it very vulnerable to credit supply shocks and external interest rate shocks. It is unlikely that a systematically tighter fiscal policy or attempts to move fiscal policy counter-cyclically could have prevented a boom-bust cycle in Norway after the financial deregulation.

In the next two sections, we take a closer look at the macroeconomic instability in the Norwegian economy after 1980, with particular emphasis on the critical years 1984-1992. Section 4 deals with the financial deregulation and the lending boom, and in section 5 we discuss the change in the behavior of banks. Section 6 considers boom-bust cycles and the role of the fixed exchange rate, and in section 7 we review the macroeconomic shocks and the fiscal policy responses. Monetary policy and the rate of inflation are the topics in section 8, and in section 9 we discuss the real estate price bubble in the light of recent economic theory. Section 10 discusses the Norwegian government's handling of banking crisis, and in section 11 some remaining issues are addressed. The conclusions are summarized in section 12.

2 MACROECONOMIC INSTABILITY

In the post-war period up until the beginning of the 1980s, aggregate output and employment fluctuations in Norway were remarkably small, significantly smaller than in the rest of the OECD. Surprisingly, in the 1980s the Norwegian business cycles became much larger. Why did this happen in one of the most stable economies in OECD?

⁷ A small recession occurred in 2002:4 and 2003:1, however. External shocks and too restrictive monetary policy, which generated a large temporary real appreciation in 2002, are the most likely causes.

⁸ In the concluding section they write the following about Norway, Sweden and Finland: „Monetary policy was constrained by the fixed-exchange-rate regime, and the stance of fiscal policy was not tightened in a timely manner and to a sufficient extent.“ They also emphasize that the Nordic governments did not take „[...] adequate measures to minimize the adjustment costs in the aftermath of the financial deregulation. The authorities failed to tighten prudential bank regulation and to create an adequate supervisory framework to take into account the substantial increase in banks' exposure to real estate lending in foreign currency. The favorable tax treatment of interest payments was not reformed until well after the credit boom.“

Let us start with Norway's economic policies in the 1970s. Due to the emerging petroleum sector, OPEC I in 1973-1974 had a strong *positive wealth effect* as well as a resource movement effect in Norway as expected oil revenues increased substantially.⁹ This shock triggered a rapid increase in aggregate demand, real appreciation, inflationary pressure, and large current account deficits. The overly expansionary policies in the 1970s prevented unemployment in the short run, but the policies were not sustainable. In 1977-1978 measures were taken to reduce excess demand and the current account deficit. The attempts to increase competitiveness by devaluation and price and wage controls could only temporarily hold back inflation, however. At the beginning of the 1980s, many problems not addressed adequately in the 1970s re-emerged, involving difficult challenges for Norwegian economic policy. The most important challenges were:

- A considerable foreign debt
- A new oil price shock (OPEC II) and large exposure to oil price risk
- Double-digit inflation and increasing unemployment
- The fixed exchange rate policy was not credible because of the inflationary bias in economic policy and very little central bank independence
- A politically regulated nominal interest rate and a negative after-tax real interest rate
- A selective credit policy framework involving imperfect quantitative regulations of credit flows and increasing chaos on the credit market
- Underdeveloped capital markets and strong political intervention in investment allocation
- A tax system giving powerful incentives to borrow rather than to save as well as providing very strong incentives to invest in real capital and to choose excessive high debt-equity ratios.

The legacy from the 1970s also included ideas and beliefs about the economy and economic policy that were not supportive of stability and growth. An ambitious quantitative planning and regulation approach to economic policy dominated economic policy thinking, and there was a correspondingly strong skepticism in the political system towards increasing the role of the market mechanism. Industrial policy was used to support industries threatened by market forces, not to promote competition, economic efficiency and productivity growth. Interest

⁹ For an analysis of the structural effects of wealth and resource movement effects, see Corden and Neary (1982).

rates in particular should not be left to the markets, but were kept at levels that involved significant negative real interest rates for households and firms; credit was supposed to be regulated and allocated to politically important sectors; and there was a widespread belief that sufficient fiscal spending would always guarantee full employment.

Chart 1 illustrates the increased aggregate fluctuations as well as the low economic growth during the 1980s. To obtain a sharper focus on the domestic business cycles, it is useful to look at Mainland GDP, excluding the petroleum sector as well as shipping. The latter sectors were fairly small in 1972, but due to the rapid growth of the petroleum sector, they now amount to almost one quarter of total GDP. Employment by these capital-intensive export sectors is quite small and their production levels are not related to Mainland business cycles.

In 1982-1983, the Norwegian economy was hit by the downturn in the international economy. Then a spectacular lending boom took place in 1984-1986, followed by a sharp cyclical downturn in 1988-1989. Norway's Mainland economy continued to be weak. Statistics Norway has identified the fourth quarter of 1992 as the business cycle trough, more than six years after the former peak. The rate of unemployment increased until 1993. The recession was the worst since the 1930s, but not as deep as in Finland and Sweden in the first half of the 1990s. From 1993, economic growth and employment picked up and a new boom was gradually built up. The strength of the Norwegian economy in 1993-1998 came as a positive surprise as many had feared an increase in the structural rate of unemployment to a much higher level than before the recession.

From chart 2 we see that employment fluctuations of the private Mainland sector were large, characterized by strong, but short-lived growth in 1985-1987, and a long period of decline from 1988 to 1993. Interestingly, private Mainland employment never returned to the same level as in 1987 due to crowding out by public sector employment. In 2001, government employment amounted to almost one third of total employment, which is the highest share among OECD-countries.¹⁰ This is probably related to the large and increasing government petroleum revenues and the government's huge wealth, both in terms of net financial assets and expected present value of future petroleum revenues.

¹⁰ There is, however, significantly more part-time employment in the public than in the private sector.

3 THE CRITICAL YEARS 1984-1992

The period 1984-1992 turned out to be a nightmare for Norwegian policy makers. Chart 3 gives an overview of the most important elements of economic policy as well as some indication of the timing of important events. At this stage the difficult questions concerning the effects of fiscal and monetary policy and their role in the boom-bust cycle will not be addressed. We return to these questions in sections 7 and 8 below. We will also come back to more details about the rise and decline of real estate prices in section 9.

In 1984 and 1985 the financial deregulation process was speeded up considerably as all quantitative regulation on lending was removed, triggering a lending boom funded by short-term borrowing from abroad and liquidity loans from Norges Bank. Private consumption, investment and asset prices increased dramatically.

The government lost its majority in the Storting in the 1985 election, and in the spring of 1986, *after* a dramatic fall in the oil price, the central wage settlement resulted in huge wage increases and a shorter working hour. In 1986 the rate of (registered) unemployment was 1.8 percent and declining. The current account went from +4.8 percent of GDP in 1985 to -6.2 percent in 1986, and the rate of inflation was increasing. There were large capital outflows and heavy speculation against the currency in the fall 1985 and spring 1986, and to prevent the money market rate from increasing, Norges Bank supplied liquidity loans to the banking system on a grand scale. The new Labor government came to power in May 1986 and immediately devalued the krone by 9 percent, followed by an increase in the interest rate and a fiscal restraint. It is interesting that the huge wage increases happened *after* the dramatic oil price decline, which reduced Norway's terms of trade by about 25 percent. Even at the time it was therefore fairly obvious that the wage increases were excessive. Those responsible for the wage settlement probably wanted the government to devalue in order to prevent the wage settlement from destroying the international competitiveness of Norwegian industry. Thus, the devaluation in May 1986 was to a large extent monetary policy accommodation driven by private sector expectations.

The business cycle peak was reached in the third quarter of 1986, but even in 1987 the labor market was extremely tight (1.5 percent unemployment) and the rate of inflation was 8.7 percent. The government decided to bring down inflation gradually to the average of its

trading partners, realizing that it should no longer devalue the krone to give temporary relief to industry as had occasionally been done in the past. In December 1986 the government delegated to Norges Bank the responsibility to set its instrument rate such as to defend the fixed exchange rate, defined in terms of a currency basket. The bank did this successfully and after less than three years, there were no longer signs of devaluations expectations in the money market interest rates. In 1988 and 1989 wage regulation laws were passed to speed up the disinflation process. In 1988, the economy went into a recession and unemployment increased. From chart 4 it is evident that the rate of inflation did in fact come down fairly quickly. During 1989-1995, inflation was even consistently lower than the average inflation rate of Norway's trading partners.

The macroeconomic story from 1986 to the end of the decade was the familiar story of disinflation through restrictive macroeconomic policies, and a recession. Although the strength of the cyclical downturn in 1988-1989 came as a surprise, the idea of bringing down inflation quickly by establishing credibility of the fixed exchange rate received wide support from Norwegian economists. It is quite possible, however, that many households, firms and banks did not perceive that future inflation and wage increases were going to be much lower than in the past fifteen years, and that the strong tax incentives to borrow were about to be reduced significantly. By the end of the decade, most banks probably had no idea of what was going to happen to their industry.

In 1990 a peg to the *ecu* replaced the currency basket. Soon, Sweden and Finland made the same decision. Since the German interest rate was particularly high due to the effects of the German unification, this decision implied that monetary policy in the Nordic countries had to be even tighter than before. Before 1989, the German money market interest rate had been significantly lower than the US money market rate, but in the beginning of the 1990s, the German rate climbed far above the US rate. Monetary policy was geared to the fixed exchange rate and could not be tailored to the Norwegian business cycle. It became increasingly tight and pro-cyclical in the late 1980s and early 1990s due to German monetary policy.

The problems in the banking industry started in 1987 and increased during 1988-1989, but it appeared that the problems could be handled by mergers and support from the banking

industry's own deposit insurance funds.¹¹ In 1991, however, to everybody's surprise, a systemic banking crisis broke loose, involving all the large commercial banks. The Government quickly supplied new equity capital to stabilize the financial system. Finally, in December 1992, after the previous attacks on the currencies of Finland and Sweden, the Norwegian currency was also attacked. After some defense Norges Bank let the currency float. A new economic recovery started in 1993.

4 FINANCIAL DEREGULATION AND THE LENDING BOOM

After World War II, a "low interest policy" was pursued in several European countries, but hardly any country stuck to a policy of permanent interest and credit regulations for such a long time and with such a determination as Norway.¹² During the 1960s and 1970s, the government developed a "credit budget" framework for macroeconomic planning, involving special government lending institutions ("state banks") responsible for different sectors like the housing sector, manufacturing, agriculture and fisheries. The idea was both to control aggregate demand (jointly with fiscal policy), and sectoral investment spending by means of a housing building permit system, regulation of the bond market and credit flows from private and public financial institutions, and regulation of foreign exchange and cross-border capital movements.¹³ Borrowing incentives of households were strong due to tax rules that allowed unlimited tax deductions for nominal borrowing costs, but credit rationing was widespread. When inflation and marginal tax rates increased in the 1970s, the nominal interest rate was lagging behind.¹⁴ The average real after-tax rate of interest therefore declined dramatically, sometimes as far down as -8 percent (see chart 5). The interest regulation policy also generated powerful incentives to channel credit outside the regulated credit market by numerous shadow market operations. Over time, new innovative ways of circumventing the regulations triggered new regulatory measures.

¹¹ There were two deposit insurance funds, one for the commercial banks and one for the savings banks. They were funded through annual contributions from member banks. Membership is compulsory.

¹² For a discussion of the roots of the Norwegian low interest rate policy and credit controls, see Steigum (1980). These policies were important elements of a quantitative macroeconomic planning approach to economic policy that received strong academic support from leading economists at the University of Oslo in the 1960s and 1970s.

¹³ For an early macroeconomic analysis of credit regulations in a combined credit multiplier and income-expenditure framework, see Johansen (1956). Steigum (1983) offers a non-market clearing analysis of interest rate regulation and capital rationing in a real macroeconomic model in which there is either full employment or classical unemployment.

¹⁴ An increase in the level of nominal interest rates in 1977-1978 failed to increase the real interest rate permanently due to increasing inflationary pressure.

From November 1978, the large commercial banks gained better access to international money market borrowing due to a new regulation requiring the sum of spot and forward foreign exchange operations to be zero.¹⁵ In the beginning of the 1980s, the growth of the eurokrone market, financial innovations and increasing flexibility of the shadow credit market, made it much more difficult for the government to constrain the underlying market forces by credit regulations. In 1981-1983, the credit ceilings in the credit budget were exceeded by nearly 30 percent on average. By now it was now obvious that the old credit policy framework was not sustainable.

This problem appears to be the main reason why the government decided to move away from credit regulations in the fall of 1983. Norges Bank believed that the regulations were not very effective anyway, and the deregulation was therefore not expected to have significant macroeconomic effects. The new policy followed a general international trend towards deregulation in financial markets as well as in other sectors. By this time, the government had already taken important steps to deregulate the bond market, as well as to open up the Norwegian stock market to foreign investors. Moreover, previous regulations on housing prices had already been lifted a few years back.

The abandonment of credit regulations took place in 1984 and 1985. After an unsuccessful attempt to re-regulate in 1986, the process of financial deregulation of domestic credit and bond markets was completed in 1988. By 1990, the remaining regulations of international capital movements had also been removed. The main idea behind the new policy was to replace quantitative credit regulations by indirect measures, such as liquidity reserve requirements. It turned out, however, that such requirements – although reducing bank profitability – were not sufficient to prevent a lending boom. Moreover, due to disagreements within the ruling center-right coalition, the government did not terminate its policy of giving interest guidelines for the lending rates of banks until the fall of 1985. These targets were often too low in relation to the money market rates, squeezing banks' profit margins. The after-tax real rate of interest was quite low during the lending boom in 1984-1986, see chart 5. When Norges Bank increased the interest rate to defend the currency in December 1986, it was too late to prevent inflation from shooting up in 1986-1987 as a result of the positive

output gap, the wage settlement shock, and the devaluation. The increase in the real interest rate was therefore not forthcoming until 1988, but then the lending boom was over, the recession was underway, and real estate prices were heading downward.

An important element of the deregulation that swiftly increased competition in the customer market for credit was the abolishment of the former regulation of new branch establishments. This stimulated banks to open up branches in new geographic areas. From 1983 to 1986, the commercial banks in Norway increased their number of branches by 15 percent, and the savings banks by 5.5 percent. Moreover, in the period 1983-1987, the number of employees increased by 28 percent in the savings banks and by 19 percent in the commercial banks. When the business cycle turned in 1987, the overcapacity in the Norwegian banking industry was evident. From 1987, the number of employees in the private banking industry began to decrease. Initially, in Sweden and Finland there was no corresponding regulation of new branch establishments before the credit markets were deregulated. Therefore, the increase in competition among banks was probably greater in Norway than in Sweden and Finland. Significant overcapacity was also being built up in the Finnish banking sector before the recession in the beginning of the 1990s. In Sweden, there were no obvious signs of overcapacity in the banking sector.

The new de-regulation policy triggered an unprecedented growth in bank lending.¹⁵ Nominal bank lending increased by about 30 percent in each of the years 1984, 1985 and 1986, but the Norwegian data for 1984 partly reflects that loans previously held outside the banks' balance sheets were taken back when credit regulations were abolished. Chart 6 compares the growth of real bank loans in Norway, Sweden and Finland. We see that Norway's real bank credit expansion was more short-lived than Finland's, which reached much larger proportions. The Swedish bank credit expansion looks marginally smaller than the Norwegian, but the Swedish loan data does not reflect lending from finance companies in the boom. Indirectly, this lending exposed the banks to substantial real estate price risk through bank guarantees. Taking the latter loans into consideration, the Swedish credit expansion was probably larger than the Norwegian as well. Another difference is that the Norwegian bank credit expansion

¹⁵ This change was motivated by a growing demand from the oil companies to buy Norwegian kroner forward from Norwegian banks to pay taxes to the Norwegian government on specific dates. The banks therefore needed to borrow US dollars to cover their foreign exchange risk.

¹⁶ Estimating a small, dynamic Bernanke-Blinder model on data up to the mid-1990s, Bårdsen and Klovland (2000) find a credit channel of monetary policy in Norway due to government regulation of credit flows and interest rates.

was not followed by the same degree of credit contraction as in Finland and Sweden. From 1987 to 1993 the real stock of loans from Norwegian banks was approximately constant. The credit contraction effect of the banking crisis in 1991-1992 in Norway is very small compared to what happened to the real stock of loans from Swedish and Finnish banks. It is also interesting to note the rapid growth of real bank loans in Norway after 1993. This is partly a reflection of the strong recovery of the Norwegian economy, see chart 1.

Chart 7 compares the real growth of credit from the banks with the total domestic credit supply in Norway. The supply of bank credit is somewhat more cyclical than the other sources of domestic credit, falling more steeply after the lending boom and increasing more quickly as a new boom was building up in the 1990s. In 1999 bank lending dropped substantially, but this time there was no danger of a banking crisis.

5 BAD BANKING

The credit market deregulation quickly changed the competitive environment and released aggressive competition for market shares in the loan market and strong aggregate credit growth. Most banks become much more willing to increase lending, often by venturing into new geographical areas. The expansionary lending behavior of banks may also be related to increased competition from non-bank financial institutions like finance companies that were less regulated than the banks before the deregulation of the credit market. The former had already for some time taken advantage of their freedom by increasing their market shares on the shadow credit market, partly by introducing “bad banking” practices involving excessive risk-taking and poor managerial control over lending decisions. The finance companies were the first financial institutions to report alarming losses in 1986 and 1987, even before the cyclical downturn of the Norwegian economy.¹⁷ The large commercial banks also increased their activities in other countries considerably. Den norske Creditbank was the biggest bank before the credit market deregulation, and it had adopted an aggressive growth strategy in the early 1980s (Lie, 1998). After the credit market deregulation, Den norske Creditbank feared

¹⁷ The losses were more than one percent of year-end loans in 1986 and two percent in 1987. The losses of finance companies reached a maximum in 1989, after which many of them were restructured or went out of business. Building on evidence from the UK secondary banking crisis in 1973-1974, Revell (1986) argues that supernormal profitability due to bank cartel arrangements stimulates aggressive competition from other financial institutions. The latter increase their market shares by introducing bad banking practices involving excessive risk taking and speculation (like short-term money market funding of long-term assets). This competition may explain why some banks also began to take more risks to protect their market shares.

that Christiania Bank should grow faster and eventually succeed in overtaking it, and a race started between the two to become the biggest bank in Norway. A significant change in behavior occurred in both banks.¹⁸ During its rapid expansion up until 1987, Den norske Creditbank had decentralized lending decisions, often to inexperienced and newly recruited staff that were given strong incentives to “sell” new loans. At the same time its previous systems of internal control and credit evaluation had broken down. Inadequate accounting systems gave the management wrong signals about profitability. For example, due to interest rate regulations, it was common to charge a fee at the time a new loan was granted, the effect of which was to boost short-run profits in rapidly expanding branches. Often the managers of such branches were promoted before the loans turned bad. Such problems were probably widespread in the Norwegian banking industry. Den norske Creditbank was the first of the large Norwegian banks to realize the downside of an aggressive growth strategy. Its losses were considerable from 1987 and onwards, and in 1990 it was merged with Bergen Bank. The new bank, Den norske Bank, was rescued by the government in 1991 and subsequently nationalized.

Since Den norske Creditbank was the biggest and most advanced bank in Norway, it probably acted as role models for other banks. Also the aggressive behavior of Christiania Bank may have influenced other bank managements. Many other Norwegian banks (commercial banks as well as some savings banks) probably copied the aggressive behavior of the two leading banks, believing that this was the appropriate way to behave and survive in the new competitive environment.¹⁹ Interestingly, the opposite was true: The survivors were the smaller and more conservative savings banks that did *not* try to copy the “bad banking” behavior of the fast-growing banks.

The commercial banks played a crucial role in the Norwegian banking crisis in 1991-1992. Table 1 shows that in 1980, the market share of commercial banks in the Norwegian bank loan market was 55 percent, about the same as in Finland, but somewhat lower than in Sweden (66 percent). After the deregulation of the credit markets in the 1980s, the market shares of commercial banks increased in all three countries, but less in Norway than in Sweden and Finland. In 1990, the market shares of commercial banks were 59.3, 72.9 and

¹⁸ For a closer look at what happened inside Christiania Bank, see Knutsen, Lange and Nordvik (1998).

¹⁹ An extreme example of bad banking is the bank that let a firm selling yachts grant loans on its behalf. The firm could even grant loans to new customers in this innovative way during weekends when it was impossible to control their creditworthiness. Not surprisingly, both the firm and bank soon went out of business, the latter by merging with a large commercial bank that was rescued by the government in 1991.

66.6 percent in Norway, Sweden and Finland, respectively. These national differences in market shares were widened as a result of the banking crisis. In the period 1990-1995, the market shares of commercial banks went further up in Sweden and Finland, but down in Norway.

The main reason for the lack of success of Norwegian commercial banks appears to be low profitability in general. Chart 8 shows bank profits before tax in Norway, Sweden and Finland, both for commercial banks (8.A) and savings banks (8B). The profitability of Norwegian commercial banks became much lower after the financial deregulation than the profitability of Swedish and Finnish commercial banks. Profits before tax already turned negative in 1987, and gradually deteriorated until the collapse in 1991-1992 as a result of mounting losses that triggered the government rescue operation. The commercial banks in Sweden and Finland experienced a drop in profits before tax to about –2 percent in the crisis year 1992, compared to –4 percent in Norway (in 1991). The Norwegian banking crisis was to a much greater extent a *commercial banking crisis* than in Sweden, and particularly in Finland, where the losses of the savings banks were staggering. Looking at chart 8.B, we see that the profitability of Norwegian savings banks also deteriorated several years before the banking crisis, but it only dropped to –1 percent in the worst crisis year 1991, compared to a drop in profits before tax to –2.5 percent and –9 percent in the Swedish and Finnish savings banks, respectively. There were large differences among Norwegian savings banks. Some medium-sized and large savings banks adopted an aggressive growth strategy very similar to what most commercial banks did, and eventually needed support from the deposit insurance fund and the new Government Bank Insurance Fund to survive.

Chart 9 shows that Norwegian commercial banks were poorly capitalized when the loan market was deregulated in 1984-1985. In 1983, capital and reserves in percent of total balance was less than five percent, compared to 6 percent in Swedish and 7 percent in Finnish commercial banks. In the following years the discrepancy increased. During the banking crisis, the capital and reserves share dropped to 2 percent in Norway (in 1991). In Sweden the share dropped to 4.6 percent (in 1992) and in Finland to 4.9 percent (1993). One reason for the low capital share in Norwegian commercial banks was that they could replace equity by subordinated loan capital. This was done on a large scale. Moreover, the capital requirement had been reduced from around 10 percent in the 1960s to 6.5 percent in 1985.

Even without the benefit of hindsight, it was surprising that the top management of the large commercial banks did not worry about the risks involved in the aggressive growth strategies that they adopted. The low capital base and low profitability certainly called for concern about risks. Interview evidence strongly suggests, however, that there was a widespread belief that fast growth was profitable and the risk manageable (Johnsen et al., 1992). Some top bank managers also may have believed that the credit market deregulation was temporary. It then made sense to increase market shares before regulations were reintroduced.

A possible reason for the collective missing perception of the high risk involved in fast expansion of lending may be that the bank losses used to be extremely small during the post-war period. Under the old credit policy framework, interest and credit regulations forced banks to ration credit to the least risky customers. This effectively protected banks from excessive risk taking. Since entry was regulated and profit margins were comfortable, it was then very profitable and almost without risk for one bank to grow at the expense of others. It is possible that the expansionist banks brought with them their perception of “growth without risk” under the old credit regulation regime into the new competitive environment that was established in 1984-1985. Apparently, they did not perceive that the risks involved in rapid expansion of lending in a deregulated credit market was much higher because many other banks tried to grow or protect their market shares too. This line of reasoning does not easily explain why the performance of the Norwegian commercial banks was significantly poorer than those of the commercial banks in Sweden and Finland, however.

Another hypothesis is that the incentive systems shaping the behavior of bank managers stimulated *rational herd behavior*.²⁰ Interview evidence supports the hypothesis that many banks copied the aggressive lending behavior of Den norske Creditbank and Christiania Bank (Johnsen et al., 1992). Moreover, insiders opposing the expansionary lending policies of the expansionist banks were often punished in the form of degradation and negative social sanctions. It is therefore possible that the conformist pressure in the banking community was so strong that herd behavior was rational even among those who understood that the growth strategies were dangerous and counterproductive. Again, although herd behavior in banks sounds like a reasonable hypothesis, it cannot explain why the performance of Norwegian commercial banks deviated from the performance of Swedish and Finnish commercial banks.

²⁰ See for example Scharfstein and Stein (1990) and Banerjee (1992).

6 UNDERSTANDING BOOM-BUST CYCLES

The strength of the boom in 1985-1986, as well as the sharp decline in economic activity in 1988-1989 and the following period of weak economic performance in 1989-1992, were all great surprises for Norwegian economists and policy-makers. Apparently, after the financial deregulation, the Norwegian economy did not behave as it used to do, and despite attempts to use fiscal policy to stabilize aggregate demand, aggregate demand fluctuated widely.

We noted above that the after-tax real interest rate increased sharply towards the end of the 1980s, being very low in the boom and very high in the recession. There are good theoretical reasons to believe that the sensitivity of consumption and investment demand to the real interest rate also increased as a result of the deregulation of the credit market. First, changes in the real interest rate triggered substitution effects as the relative price of future consumption changed. Second, when the indebtedness increased as a result of the lending boom, the income effects of changes in the real (after-tax) interest rate became larger, making indebted households and firms more vulnerable to increases in the real interest rate. And finally, changes in the real interest rate affected asset prices and household wealth. Increased asset prices gives rise to wealth effects in private consumption and makes it more profitable to build new physical capital. Also in Finland and Sweden the after-tax real interest rate was low during the lending boom and very high during the economic crisis. It is therefore very likely that the interest rate played a crucial role in the boom-bust cycles in all the three Nordic countries.

Another mechanism that became more important after the financial deregulation was the automatic tendency of the trade balance to correct itself over time. During the lending boom, the savings rate of households dropped to about -5 percent, and the government was deeply worried about the large current account deficits. However, households and firms could not spend more than their incomes forever, but had to satisfy their intertemporal budget constraints and reduce future spending. Therefore, the fact that households and firms intended to service their debts in the future would have an automatic stabilizing effect on the trade balance even for constant real exchange rate and fiscal policy. What was not fully understood at the time was that households and firms could only *temporarily* increase spending as a result of increased credit availability. Therefore, the large current account deficit in 1986 was not

sustainable. Moreover, it was likely that – as a consequence of financial deregulation – the long-run increase in the real rate of interest would reduce the share of gross investment in GDP, strengthening the current account in the medium term.

In retrospect, is it difficult to understand what caused the boom-bust cycles in Norway, Sweden and Finland in terms of mainstream macroeconomic theory? Let us see how far we can get with a simple story of the business cycle propagation mechanism of an exchange rate fixing country that deregulates its credit market and the capital account. When the fixed exchange rate is credible, neither the real interest rate nor the real exchange rate will move to counteract the effects of increasing or declining aggregate demand. Monetary policy must be used to keep the exchange rate fixed to the anchor countries (mainly Germany in this case). Therefore, the nominal interest rate will closely follow the German interest rate, making it impossible for the Central Bank to set its interest rates for counter-cyclical purposes, or prevent fluctuations in the rate of inflation. Only fiscal policy may reduce fluctuations in aggregate demand, if the timing is right, but in practice, a tightening of fiscal policy may come too late in the boom and could even make the bust worse.

Let us look at the effects of a positive demand shock in private investment and consumption. As we shall argue more in detail below, the sudden change from credit rationing to easy credit in Norway in 1984-1985 had a tremendous effect on private demand for consumption and investment. The monetary policy accommodation of the surge in aggregate demand is likely to increase housing and stock prices as well, stimulating consumption and investment demand further. Asset price increases could also turn into asset price bubbles in the markets for real estate and stocks. Such bubbles appear to be important in all boom-bust cycles that involve financial crises. We shall return to the question of why such bubbles builds up and bursts in section 9 below. Another mechanism that usually adds to the demand pressure is the negative effect of increased inflation on the real interest rate during the boom. In the bust phase, this effect could be de-stabilizing, as a fall in wage and price inflation leads to an increase in the real interest rate.

Our simple story of a booming small open economy with a fixed exchange rate can explain why excess demand for goods and labor could build up in a lending boom and ignite wage and price inflation. It can also explain why stagnant demand and high unemployment could continue for years if the real exchange rate is overvalued and low inflation (or deflation) leads

to a high real interest rate. Falling asset prices, collateral squeeze, debt deflation, and possible also a credit crunch could also explain why a country could fall into a depression. It is then likely that a speculative attack would put an end to the fixed exchange rate policy. To make the story of the boom-bust cycle complete, however, we also need to consider the macroeconomic shocks that initiated the boom, burst the asset price bubbles and triggered the drop in aggregate demand, as well as fiscal policy. Without unfortunate shocks, lending booms do not have to turn into a recession and financial crisis. As noted in the introduction, most lending booms do not end in crisis, but with a “soft landing”.

7 SHOCKS AND MACROECONOMIC POLICIES

Let us now consider the shocks that started the boom. In previous Norwegian business cycles, international (particularly European) business cycle impulses have been important. This was not the case in the boom and bust of the 1980s, however. A quantitative analysis by Eika and Lindquist (1997) concludes that international impulses had a marginal *stabilizing* effect on the Norwegian economy through non-oil exports in the 1980s. Bjørnland (2000b) finds that after 1980, non-oil exports lag the Mainland cycle, implying that non-oil exports cannot have been an important driving force of Norwegian business cycles. The Norwegian boom therefore appears to have been homemade.

Could the high oil price in 1979-1985 account for the boom? The world oil price increased sharply in real terms in 1979 and 1980 (OPEC II), and then declined gradually before the dramatic drop in 1986. There are two main effects of a high oil price on the Norwegian economy. The first is the negative effect from the world economy, hitting non-oil exports in particular. The second is the aggregate demand effect of a more expansionary fiscal policy and increased investment spending in the petroleum industry. It is very difficult to quantify these effects; particularly what the government’s fiscal policy would have been if OPEC II had not happened. The growth of government spending increased in 1980 and 1981 and labor income taxes were reduced in the period 1981-1985. Still the government ran substantial surpluses, see chart 12 below. A quantitative analysis by Eika (1996) suggests that in the period 1982-1993, petroleum investment did in fact exacerbate macroeconomic fluctuations. For example, in 1988 petroleum investment dropped by more than 20 percent as a result of the lower oil price, hitting the economy adversely in the midst of a recession. Another

quantitative analysis by Eika and Magnussen (1997) argue that the total effect of the high oil price on Mainland-GDP and employment was positive. This analysis suggests that OPEC II had a partially stabilizing effect in the business cycle downturn in 1982-1983, but made a positive contribution to the next boom. According to these calculations, the increase in aggregate demand also increased real product wages and reduced the international competitiveness of Norwegian Mainland industry. Bjørnland (2000a) finds similar, although somewhat smaller effects, using a VAR model that distinguishes between aggregate demand, aggregate supply and oil price shocks.

Even though the high oil price in 1979-1985 probably induced a more expansionary fiscal policy after OPEC II, it is unlikely that fiscal policy and petroleum investment played the major roles in the boom of 1984-1986. The changes in fiscal policy and petroleum investment were far from sufficient to explain the dramatic increase in private consumption and real investment in the boom. The sudden fall in rate of household saving in 1985 and 1986 is particularly difficult to explain in terms of a fiscal stimulus in the beginning of the 1980s.

It is a reasonable hypothesis that a credit supply shock caused by the de-regulation and the change in lending behavior of banks and other financial institutions is the main cause of the dramatic increase in private consumption and investment in 1985 and 1986. The story is straightforward. First, the real rate of interest is very low, but loans are rationed, and there is excess demand for credit. When the banks are allowed to expand lending, many households and firms want to consume and invest more, and they therefore increase their borrowing and spending. Thus, aggregate demand increases, asset prices go up, the economy booms, excess demand for labor builds up, and wages and prices take off. This story is consistent with the fact that the savings rates of households suddenly dropped in all the Nordic countries, see chart 10. The fall in the savings rate was greatest in Norway, where it dropped by almost 10 percentage points from 1984 to 1986, despite normal growth in disposable income. Private consumption increased by a staggering 15 percent in real terms during 1985 and the first half of 1986.

The consumption booms in Norway, Sweden and Finland are not typical for boom-bust cycles in other parts of the world. In a cross-country study of 39 middle-income countries that have experienced twin crises (both a currency crisis and a banking crisis), Tornell and Westermann (2002) find that in most cases consumption did not deviate much from trend during the boom.

Is it possible to explain the dramatic increase in private consumption in any other way than a shift from substantial credit rationing to extremely easy access to credit? An alternative hypothesis is that a wealth effect, not a shift from credit rationing to easy credit, explains the drop in the savings rate of households. The wealth of Norwegian households did indeed increase in 1984-1986, particularly housing and stock wealth.²¹ However, as illustrated in chart 16 below, the real price of housing increased even more in 1981-1982 (due to deregulation of the housing market) than in 1984-1986, and there was almost no decline in the savings rate following the housing price increase in 1981-1982. Moreover, the quantitative effect of the stock market boom on household wealth was probably quite small. Therefore, the fall in the savings rate in 1984-1986 was too large to be explained solely in terms of a conventional wealth effect.²² In addition to a wealth effect, the new access to credit allowed households to reduce the forced saving inherent in the old credit-rationing regime.

The sudden change in lending behavior triggered by the deregulation of the credit market could thus be understood as an unprecedented credit supply shock that had a strong effect on aggregate demand.²³ Chart 11 compares the three components of domestic expenditure on goods and services (aggregate investment and private and public consumption, excluding imputed values for capital consumption) with Mainland GDP. The series have been deflated by the same price index in order to compare nominal expenditure and output. Domestic expenditure sharply rises in the business cycle upturn 1984-1986, much faster than Mainland GDP. This fits well with our story that the credit supply shock mainly propagated through aggregate demand, which both increased Mainland output and the current account deficit.

Although we cannot exclude the possibility that the increased availability of credit also had an aggregate supply effect, the fact that the rate of unemployment declined to 1.5 percent in 1987, along with a wage explosion and the large current account deficits, is strong evidence in favor of the hypothesis that the aggregate demand channel was dominant. The really great

²¹ Traditionally, the Norwegian stock market has been small in relation to GDP and share holdings by households have been quite low. Due to a high share of homeowners in Norway, housing wealth is much more important for households than stock market wealth.

²² Eitrheim et al. (2002) estimate a consumption function on Norwegian data in which a household wealth variable plays an important role along with income. They estimate a long-run wealth elasticity of 0.27, which is much stronger than a conventional wealth effect in life-cycle models. The strength of this empirical effect could indicate that it picks up a shift from credit rationing to easy access to credit.

²³ Using a macro-econometric model of the Norwegian economy, Hove and Moum (1997) conclude that the credit supply shock had a very strong effect on private consumption and aggregate demand in 1985-1987. For a different view, see Rødseth (1994).

surprise in 1985-1986 (and even today) was the strength of the effect of the shock. We shall return to this question below.

Also the recession and increase in unemployment after 1987 looks overwhelmingly as driven by aggregate demand; see chart 11. Aggregate expenditure dropped sharply from 1987 to 1989, and then grew only slowly until 1993. Again, Mainland GDP did not fall to the same extent as aggregate demand, as part of the effect showed up as a strengthening of the current account. Why did aggregate demand decline so much after 1987? Let us first consider fiscal policy.

Chart 12 shows the development of the central government's net surplus in percent of GDP along with the surplus of the current account of the balance of payments (also in percent of GDP). We see that in 1985 both surpluses were huge. The surplus of the government was 9 percent of GDP and the current account surplus 5 percent. In 1986, the current account turned into a 6 percent deficit. A closer examination of the data reveals that lower exports of petroleum accounted for 53 percent of the deterioration of the current account from 1985 to 1986, 32 percent was due to increased imports, and 15 percent to a decline in other exports than petroleum. Even if the oil price shock reduced the government's income substantially, we see that the surpluses were still 5 percent in 1986 and 1987, declining slowly as a result of the automatic fiscal stabilizers.

When the new Labor government took over in May 1986, it justified the need for a fiscal policy restraint with the following strong words:

“Norway is now in the most serious situation of crisis. The country faces profound problems involving a huge weakening of the balance of payments and a consumption level that we as a nation cannot afford. The problems have been increasing during the last year, and were enhanced by the dramatic drop in the oil prices.” (National Budget 1987)

Still, in 1986 the share of private consumption in total GDP was only 52,3 percent, and Norway's total saving in percent of GDP was 11,1 percent. Compared with most other industrialized countries, Norway was saving quite a bit, even after the oil price had dropped in

1986.²⁴ Therefore, in retrospect, the government's fear of permanently excessive private consumption and structural current account deficits appear to be exaggerated. As discussed above, strong demand growth financed by lending is not sustainable as households and firms have to satisfy their intertemporal budget constraints and cut future spending. Moreover, the high rates of investment in 1985 and 1986 were clearly part of the reason for the weakening of the current account. The high investment rates in the petroleum sector and in sectors producing non-traded goods were unlikely to be permanent. With a significant government surplus even after the oil price decline, it was therefore not obvious why the government should increase net taxes in order to curb the real income growth of households that were already heavily indebted. It should be added, however, that the preliminary data used by the government underestimated the fall in the savings rate in 1985. It was also a new and difficult situation for the government to handle. The boom was mainly a result of a credit supply shock, but such a shock had not been observed before, at least not after World War II. Since the data revealed that private consumption had increased sharply, and that the economy clearly was in a state of excessive aggregate demand, it was perhaps not very surprising that the government wanted a fiscal restraint directed towards constraining household income and private consumption.²⁵

According to the Finance Ministry's own fiscal policy indicator, the fiscal restraint in the three years 1986-1988 summed up to 4,5 percent of Mainland GDP. The effects were however stronger if the effects of local government spending are also accounted for. The latter effects usually come with a longer time lag than the effects of changes in central government spending and taxation. The government also reduced – in several steps – the rate at which borrowing costs could be deducted from the income tax. The most significant steps occurred in 1988 and as an element in the 1992 tax reform.²⁶ Together with an increasing German interest rate and falling inflation, the change in the tax rules increased the after-tax real rate of interest from about zero in 1987 to more than 7 percent in 1992, see chart 5. It is likely that the increase in the real rate of interest had a strong negative effect on aggregate demand and housing prices in the period 1988-1993.

²⁴ The negative oil price shock itself called for a long-run fiscal restraint due to the fall in government wealth. In a dependent economy theoretical framework, Steigum and Thøgersen (2003) show that optimal fiscal policy involves temporary deficits and a low neutral real rate of interest if sectoral adjustment is costly and time-consuming. In the Nordic countries, the real rate of interest became very high as a consequence of the fixed exchange rates, however, triggering an intertemporal coordination failure.

²⁵ The stabilization policy package also included measures to constrain private investment, but they were probably not very important quantitatively.

Table 2 reports some key data on household income and consumption during the critical years 1984-1992. In the boom years 1985-1986, real household income before net taxes grew faster than real disposable income due to the automatic stabilizers. Very strong consumption growth triggered a dramatic decline in the savings rate. In 1987, the fiscal policy restraint reduced real disposable income by 0,9 percent, while real income before taxes and transfers increased by 1,7 percent. In this year, household consumption declined due to a sharp fall in household purchases of goods. It is very likely that a weaker demand for goods such as cars and furniture would have set in even in the absence of higher net taxes in 1987. In 1985 and 1986, the purchases of consumer durables had increased enormously to a level that was clearly not sustainable. In the recession years 1988 and 1989 before-tax real income felled, but the automatic stabilizers generated a low positive growth of disposable real income.

Household consumption declined for three years, particularly consumption of goods, which declined by 11 percent from 1986 to 1989. In 1990 as slow recovery in consumption started, and in 1992, the rate of saving of households had recovered to 5,9 percent. Fiscal policy became gradually more expansionary in the beginning of the 1990s, boosting household disposable income. According to a quantitative analysis by Bowitz and Hove (1996), however, fiscal policy was turned around too late to have significantly counter-cyclical effect in the years 1989-1991.²⁷ In 1992 and 1993, there can be no doubt that fiscal policy was expansionary.

Chart 13 illustrates the cycles in household income and expenditure (including investment in housing). The distance between the two upper graphs represents net interest payments, which became very significant in the recession. Higher after-tax real interest rates, a slow-down of income growth, increasing unemployment and declining asset prices are all factors that contributed to the dramatic decline in household expenditure after 1986.

As we have already noted, aggregate investment played a more important role in the boom-bust cycle than private consumption, see chart 11. Chart 14 gives more detail. The series for

²⁶ In the early 1980s, a tax commission had suggested a tax reform that would have reduced the tax incentives to borrow, but the issue was politically difficult and the problem was postponed.

²⁷ The measurement of fiscal policy impulses is sensitive to whether local government spending is included or not. If the latter is included, as in Bowitz and Hove (1996), it took a longer time before fiscal policy turned expansionary than if one uses the cyclically adjusted fiscal policy indicator of the Ministry of Finance to measure changes in fiscal policy.

total investment in real capital (fixed as well as inventory investment) exclude net imports of ships and oilrigs because these imports do not have any impact on domestic demand and the business cycle. The distance between the two upper graphs represents inventory investment, including oilrigs under construction. The distance between the graphs for fixed capital and Mainland fixed capital measures the investment in ships and oilrigs built in Norway. This component of aggregate investment in fixed capital has become quite important in the 1980s and 1990s due to the increase in petroleum investment and the policy of giving priority to Norwegian shipyards and rig-constructing firms. Also Mainland investment in fixed capital (mostly investment in housing and other non-traded sectors) was a very important factor in the boom-bust cycle. It is very likely that the Mainland investment boom in 1986-1987 was mainly due to the credit supply shock as well, both directly and indirectly as a response to the increased consumption demand triggered by the credit supply shock.²⁸

It is interesting to note that the next investment boom, in 1994-1998, was considerably larger than the investment boom in 1983-1987. Clearly, the credit supply shock itself cannot explain the surprisingly long period of very low investment from 1989 to 1994, followed by an even stronger investment boom than the previous cycle. For example, from 1986 to 1992, housing investment fell by about 50 percent. The real interest rate is a factor (in addition to the usual accelerator effects) that could help to explain the large investment fluctuations after the cyclical downturn in 1988-1989. As we have noted earlier, the real interest rate became quite high in the period 1989-1993 before it declined to a normal level; see chart 5. This brings us to monetary policy.

8 MONETARY POLICY

Like in Sweden and Finland, previous inflation and devaluations had undermined the credibility of Norway's fixed exchange rate policy at the time of the financial deregulation. The labor market organizations had reasons to expect that, from time to time, the Government would devalue the krone to regain lost competitiveness. Lenders and borrowers also had reasons to expect continued inflation, and after the drop in the oil price in the beginning of 1986, speculation against the krone was intense. When the new Labor government devalued

²⁸ The strong capacity growth of the non-traded sector after the consumption boom suggests a coordination failure, as firms did not fully realize that consumption financed by borrowing was not sustainable.

the krone by 9 percent in May 1986, it soon realized that if the disinflation policy should succeed, it was necessary to terminate the previous policy of improving the cost competitiveness of Norwegian industry through accommodative devaluations. The question of whether the currency should be fixed or flexible had not been a political issue in Norway, however, even though the growing dependence on oil revenues could have been used as a sound argument for exchange rate flexibility to absorb terms-of-trade shocks and dampen the effects of other asymmetric shocks.²⁹ An important reason for the popularity of fixed exchange rates was the Scandinavian-style wage formation system in Norway, according to which the manufacturing industry exposed to international competition should act as a wage leader. In order to agree on the right nominal wage consistent with satisfactory cost competitiveness, a fixed exchange rate was a great advantage for centralized wage bargaining. A fixed exchange rate has therefore always been strongly recommended by the labor market organizations, but in years of excessive wage increases, accommodative devaluations have been welcomed too.

If the exchange rate should be fixed, it was necessary to leave the interest setting to Norges Bank to prevent loss of credibility. In the period 1987-1989, this new policy worked remarkably well in bringing inflation down, see chart 4 above. In 1989, differences between the Norwegian and the European interest rates were quite small, and all devaluation expectations seemed to have disappeared. In 1990, the center-right government removed the remaining regulations of international capital flows and replaced the currency basket with a currency peg to the *ecu*. There was one serious problem that only gradually became evident, however: German monetary policy had become very tight after 1989 due to the inflationary consequences of the German unification. Hence, Norwegian monetary policy had to be tight too, just as in Sweden and Finland. Therefore, the real interest rate increased substantially after the rate of inflation had come down to a level below that of Norway's trading partners; see chart 5. In the recession following the lending boom, monetary policy became increasingly tight.

Chart 15 illustrates the pro-cyclical monetary policy by comparing two versions of the Taylor rule with the money market interest rate (NIBOR). The two versions differ in that the Taylor

²⁹ Norway revaluated the krone in 1973 to reduce inflationary pressure. This was unintentionally seen as a signal to increase wages by the labor unions, however, and the real exchange rate appreciated dramatically after the wage settlement in 1973. This unfortunate experience may explain why exchange rate flexibility has not been an issue in the economic policy debate in Norway until the late 1990s.

interest rate (forward) is based on an estimate of expected inflation whereas the Taylor rate is calculated on the basis of observed inflation. The Taylor interest rates give an indication as to which interest rate would be appropriate for bringing inflation down to a 2.5 percent inflation target. If the Taylor rates are higher than the money market rate, the method suggests that monetary policy in that particular quarter was too expansionary, and if the Taylor rates are lower than the money market rates, monetary policy was too tight, hurting the real economy more than necessary to bring inflation down.

One problem with this method is that we don't know if the Taylor rule would in fact have brought inflation down in the 1980s. It is possible, for example, that the strong tax incentives to borrow and spend required a *higher* money market rate to bring down inflation than the Taylor interest rate. Since the tax rules were gradually changed to reduce these incentives, this bias in the Taylor rule was probably greater during the lending boom in 1984-1986 than at the time of the banking crisis (1991-1992). Another problem is that the Taylor rule is estimated from U.S. data in a period where the public expected future inflation to be low. In Norway it probably took a long time until the public began to expect low inflation to prevail, perhaps not until the beginning of the 1990s. If the public believes that future inflation is going to be much higher than 2.5 percent, an optimal monetary policy strategy for bringing inflation down probably requires a *higher* interest rate than the Taylor rate. This is an additional reason for arguing that – during the lending boom – the Taylor rate underestimates the interest rate needed to bring down inflation and expected inflation down to 2.5 percent.

Looking at chart 15, it suggests that monetary policy was very tight in the years before and under the banking crisis (the period 1989-1992). In this period, tax incentives to borrow were gradually reduced, the rate of inflation was falling, and it is likely that the expected rate of inflation had already come down quite a bit. We are therefore confident that the large differences between the NIBOR and the Taylor rate (forward) in chart 15 do indicate that monetary policy was very tight in the period 1989-1992. The figure is however less clear-cut about monetary policy during the lending boom. Let us therefore take a closer look at the data.

Table 3 presents the average difference between the money market rate and the Taylor rate (forward) in the years 1984-1993. In 1984 the average difference was slightly positive (1.4 percentage points) and in 1985 zero, suggesting that monetary policy was not too

expansionary in these years, at least not until the last quarter of 1985 when the Taylor rate (forward) exceeded NIBOR by 0.9 percentage points (not shown in the table). With reference to our discussion about the strong tax incentives to borrow and spend that prevailed in these years, it is entirely possible that monetary policy was too expansionary, particularly in 1985 when the growth in aggregate demand was enormous. Since monetary policy in 1985 contributed to an increase in inflation from 5.7 percent in 1985 to 7.2 and 8.7 percent in 1986 and 1987, respectively, it is likely that the Taylor rate illustrated in Chart 15 underestimates the necessary interest rate to bring inflation further down in the boom years. Table 3 suggests that in 1986 and 1987, monetary policy was indeed expansionary. For the reasons discussed above, the differences between Taylor rates (forward) and the NIBOR probably underestimate the inflationary bias in monetary policy in these years also. Table 3 suggests that in 1988 monetary policy was too expansionary in the first two quarters, but turned too tight in the second half of 1988 when the sharp cyclical downturn began. In the period 1989-1992, the Taylor rates are substantially below the NIBOR, particularly in 1992. In the second half of 1992, for example, the average difference between the NIBOR and the Taylor rate (forward) was 8.4 percent, suggesting an extremely pro-cyclical monetary policy. Fortunately, the gap between the interest rate and the Taylor rate become almost closed when the German interest rate fell during 1993. From table 3 we see that the NIBOR came very close to the Taylor rate (forward) in 1993, after which a strong business cycle upturn began. Still, the previously tight monetary policy moved the inflation rate significantly below 2.5 percent in 1994.

As discussed above, the interest rate sensitivity of aggregate demand had increased as a result of the effects of financial deregulation in the 1980s. It is therefore likely that high after-tax real interest rate in 1989-1992 is an important explanatory factor behind the weak aggregate demand, slow economic growth and increasing unemployment in Norway during this period. The high real interest rate also helps to explain why housing prices declined for many years after the cyclical downturn in 1988-1989, and why the banking crisis became so extensive.

After the Swedish devaluation in November 1992, Norway's fixed exchange rate came under increased pressure. Norges Bank defended the currency by raising interest rates sharply, but eventually gave in to the pressure and let the currency float on December 10. This was a decision made in cooperation with the government. The consensus was that it would have

been possible to defend the krone longer, but that it was not worth the cost.³⁰ The depreciation turned out to be quite small, however, about 4 percent. Four years later, the value of the Norwegian krone was even temporarily stronger than before the attack in 1992. It is difficult to find convincing fundamental factors that could explain the speculative attack in the conventional way. Inflation was quite low, government finances were good, the banking crisis had already been handled quite efficiently, and the current account had shown a surplus for several years. Moreover, the speculative attack was much less significant for the real economy than in Finland and Sweden where the currencies were clearly overvalued before the speculative attacks there.

It is quite possible that the basis for the attack was self-fulfilling expectations (Obstfeld, 1996). Several countries had been attacked “successfully” before the November attack on the Swedish krone. Given Norway’s recent history of inflation and accommodative devaluations, speculators had reasons to believe that the government would devalue rather than accepting a high interest rate for an extended period of time. In retrospect, it was fortunate that the Norges Bank did not defend the currency for an even longer period of time. In stead of following Sweden and introduce inflation targeting, however, the government preferred a new policy of managed float according to which Norges Bank should raise or lower its interest rates whenever the exchange rate was considered to be too weak or too strong. This monetary policy did not work well in the boom years 1996-1998, however, because monetary policy turned pro-cyclical and contributed to excess aggregate demand. Exchange rate targeting was practically abandoned in 1999.

9 THE REAL ESTATE PRICE BUBBLE

Empirical studies of financial crises around the world strongly suggest that financial liberalization, rapid credit expansion and bursting asset price bubbles are crucial factors that propagate boom-bust cycles and financial crises, see for example Kamsky and Reinhart (1996,1999), and Demirgüç-Kunt and Detragiache (1998). Allan and Gale (2000) offer a theory of asset price bubbles based on a credit market failure, and Bernanke and Gertler (1989) and Holmstrom and Tirole (1997), among others, have analyzed how such market

³⁰ It was also important for the Norwegian government not to devalue immediately after the Swedish

failures in the financial sector may hurt the real economy. The crucial element in the model of Allan and Gale is an agency problem preventing lenders from observing how the funds are invested. The debt contract then gives rise to a risk-shifting problem, as borrowers can shift downside risk on to the lenders when buying risky assets.³¹ When investors behave according to these incentives, the equilibrium asset price will be high relative to the “fundamental” value of the asset. In other words, an asset price bubble is created. This theory predicts that the size of the bubble will both depend on the availability of credit now and expectations of future expansion of credit. Financial deregulation usually increases the availability of credit and could therefore start an asset price bubble. The bursting of the bubble could be due to a real shock that reduces asset returns or a change in monetary policy that makes credit less available. Allen and Gale (1999) suggest that the collapse of the Norwegian asset price bubble was due to the 1986 oil price shock, which triggered fiscal and monetary tightening.

In Norway the prices of real estate were far more important for aggregate demand than stock market prices, which dropped sharply, but temporarily in 1987. Relative prices of housing and non-residential real estate are shown in chart 16. We see that the relative price of non-residential real estate in Oslo increased substantially during the lending boom, peaked in 1986 and then fell sharply to about the same level in 1992 as in 1982. The data therefore suggest a non-residential real estate price bubble fed by the credit supply shock, and which busted when economic policy was changed after the oil price shock in 1986. The fact that this asset price did not increase during the next boom in the 1990s is also an indication that there really was a real estate price bubble in conjunction with the lending boom.

The relative housing price behaves strikingly different. First it increases as a result of the deregulation of the housing market in the beginning of the 1980s. During the lending boom, the price rises further (after a temporary decline), but much less than the relative price of non-residential real estate. After 1987, it starts a dramatic decline, which is not comparable with what happened during the boom. Then, in the next boom in the 1990s, the housing price climbs to a much higher level than the former peak in 1987. It is therefore not obvious that the increase in the housing price during the lending boom could be characterized as a bubble. Going back to the theory of Allan and Gale (2000), it predicts that the risk-shifting problem is more likely to be serious when firms with limited liability (rather than households) borrow to

devaluation.

³¹ Deposit insurance or implicit guarantees from the government to bail out banks would add to the problems highlighted in this theory, but are not necessary elements in it.

invest in real estate and other risky assets. In Norway and most industrialized countries, households are stuck with the debt even if the collateral values of housing decline. This suggests that large price bubbles are more likely in stock markets and markets for commercial real estate.

In regard to the dramatic decline the real housing price in 1987-1993, the high after-tax real interest rate has probably played a crucial role; see chart 5 and table 3. This also explains why the relative price increased so much in the years after the real rate of interest came down in 1993. It is also likely that the large decline in relative housing prices had a significant negative wealth effect on private consumption as well as a negative effect on investment in new homes.

Chart 17 compares the non-residential real estate price bubbles in Oslo and Stockholm. We have assumed (somewhat arbitrarily) that the start of the asset price bubble is 1981 in Oslo and 1983 in Stockholm. Ten to eleven years later, we see that the relative prices in terms of the CPI are back to where they started in both cities. The bubble in Stockholm is larger than the bubble in Oslo. The former builds up over a longer time than the Oslo bubble, which bursts after five years (1986). The Stockholm bubble bursts after seven years (1990) and the decline is steeper and more dramatic than in Oslo. A notable difference between Norway and Sweden is that the banking crisis in Norway happened five years after the cyclical downturn and bursting of the bubble. In Sweden and Finland the time lags between the business cycle bursts and the banking crises were much shorter.

10 THE GOVERNMENT'S HANDLING OF THE BANKING CRISIS

In some of the most expansionist banks and financial institutions, low profits and weakening of capital bases were already felt in 1987, before the sharp cyclical downturn. In 1988-1989, several smaller banks got into trouble and had to be merged with larger banks, or receive capital injections from the two deposit insurance funds for savings banks and commercial banks. By the end of 1990, the deposit insurance fund for the savings banks was almost empty. It was also becoming increasingly clear that some commercial banks would need government support.

In March 1991, The Government Bank Insurance Fund, was established, capitalized with 5 billion kroner, to secure the interests of depositors and bolster the general confidence in the banking industry. During the summer of 1991, the deposit insurance fund of the commercial banks was empty, and on October 14, 1991, Christiania Bank, Norway's second largest bank, notified that its entire equity capital was lost. The government reacted immediately and publicly declared that it would support the bank with sufficient share capital. The government injected 6 new billion kroner into the Government Bank Insurance Fund and established a new fund, The Government Bank Investment Fund, which should supply capital to the banking industry at commercial terms and help banks to raise private equity capital. In December 1991, The Government Insurance Fund injected new capital into another large commercial bank, Fokus Bank. As a result of high losses and a lack of confidence by private investors, the old share capital in Christiania Bank and Fokus Bank was written off to zero by government decision, making the government (through its Bank Insurance Fund) the sole owner of the two banks.³² By the end of the year, Norway's biggest bank, Den norske Bank (a recent merger of Den norske Creditbank and Bergen Bank) also reported a need for capital injections from the government's funds. This rescue operation implied that the old private share capital was written off by 90 percent. New reported losses in 1992 further reduced the value of the old share capital to zero, leaving the government as the sole owner of the biggest bank in Norway in addition to Christiania and Fokus. Ironically, the financial deregulation – which was intended to be an important step towards a larger role for markets and less government intervention and regulation – ended in a nationalization of the three biggest commercial banks. There were also some further capital injections into the banking industry in 1992 and 1993.

A recent calculation by Moen (2003) shows that the Norwegian government made a net profit from rescuing and supporting the banking sector. The fiscal cost was therefore more than recovered later. Table 4 reports some details from this analysis. All numbers are present values measured by the end of 2001. The upper part of table 4 shows the investment cost, revenue, and net revenue from capital injections into banks. To measure the present value of the investment outlays, a risk premium of four percent has been added to the risk free interest rate. We see that the rescue of Den norske Bank was particularly profitable for the government. The government still owns 47.8 percent of the share capital of this bank. Taking

³² An amendment to the banking law permitted the government to write down the value of the old shares to zero in order to ensure that the old shareholders were covering losses before taxpayers' money was invested.

all the rescued banks together, the present value of net revenue was above 13 billion kroner, which is more than 30 percent of the present value of the investment cost.

The lower part of table 2 considers other fiscal costs such as the costs of Norges Bank's subsidies and losses from liquidity loans to crisis banks. Still, the total present value of all fiscal costs (51.1 billion kroner) is smaller than the present value of all revenue (56.8 billion kroner), yielding a present value of net revenue of 5.8 billion kroner. The present value of the gross fiscal cost is 3.4 percent of GDP in 2001.

Moen (2003) also calculates the present values of total fiscal costs and income if the risk free interest rate is employed in the calculations. This reduces the present value of fiscal costs to 39.7 billion kroner (2.6 percent of GDP) and increases the present value of net revenue to 13.7 billion kroner (0.9 percent of GDP).

A natural question is why no private investors were willing to invest in the Norwegian commercial banks during the banking crisis. The main reason was the risk was considered too high for potential private wealth owners. In 1992, the outlook for the banking industry and for the Norwegian economy was not good compared to what actually happened in the rest of the 1990s. Even in 1995, a calculation based on market prices of bank shares indicated that the government would lose financially from rescuing the banks.³³ However, from 1995 to 2001, the value of the government's bank shares increased substantially. It was therefore not really surprising that in Norway, only the government could rescue the large commercial banks in 1991-1992.

The Norwegian government's handling of the banking crisis was quite efficient. Given the government's explicit willingness to inject new capital, the banks could continue their operations and keep their lines open to the international money markets. Compared to what happened in Finland and Sweden, the real economy was not declining in 1991-1993, but economic growth was picking up, see table 5. Due to strong growth of oil production, GDD was growing significantly faster than Mainland GDP in 1990-1995, but even Mainland GDP was growing by 1.4 and 2.3 percent in the two banking crisis year 1991 and 1992.

³³ The present value of the total fiscal cost and income on December 31, 1995 was 28.6 and 20 billion kroner, respectively, yielding a present value of net fiscal cost of 8.6 billion. During the period 1995-2001, Christiania Bank, Fokus Bank and Sparebanken NOR had been re-privatized and the government ownership in Den norske Bank had been reduced to less than 50 percent.

It is not possible to identify a credit crunch just by looking at aggregate data, but given the positive and increasing growth rate of Mainland GDP it seems unlikely that the quantitatively importance of a credit crunch, if any, was great. A recent paper by Vale (2002) studies inventory behavior in a sample of 669 relatively small firms and looks for behavioral differences between customers of “problem banks”, i.e. banks, which had received new capital from the government, and others. He does not find that the inventory behavior differed, although variables such as unused lines of credit and short-term debt to suppliers seem to matter for inventory behavior. In an empirical event study of stock prices of large firms, Ongena, Smith and Michalsen (2003) do not find significant effects for customers of distressed banks.³⁴ We note that the real after-tax rate of interest was particularly high in 1991-1993 and that the real housing price was declining in 1990-1992. It is therefore reasonable to interpret the negative real bank lending growth in 1991-1993 in table 5 mainly as a reflection of non-performing loan, falling collateral values, and a declining demand for credit.

How successful was the government’s handling of the banking crisis? According to Allen and Gale (1999), the Nordic government’s quick and extensive interventions were very appropriate. They compare Norway and Japan:

“The (Norwegian) government’s prompt action in restoring the banking system meant that it was quickly able to revert to performing its normal economic function.” [...] “The return to robust economic growth in turn reinforced the recovery in the banking system.”

Contrasting this with the handling of the banking problems in Japan, they write:

“Perhaps because in a number of dimensions other than asset prices, such as bank profitability, the severity of the crisis was not that great [...], the reaction of the Japanese government was initially in stark contrast to what happened in Norway. With the exception of modest financial assistance in 1995 to deal with the problem of housing companies affiliated to banks (the *jusen*), the government did not provide funds. This meant that banks slowly had to make provisions for bad loans from operating income and unrealized profits on stock

³⁴ Several studies have employed stock price data to search for contagion effects during the Norwegian banking crisis, see Kaen and Michalsen (1994), Clare and Priestley (2002) and Andrade, Clare and Priestley (2004). The answer seems to be yes, but the contagion appears to be temporary.

holdings.” [...] “In Japan the presumption was that economic growth would return and this would solve the banking problem. With the benefit of hindsight, it appears that the direction of causality is the opposite of that assumed in Japan. A solution to the banking problem is necessary to restore economic growth.”

Allan and Gale (1999) do not discuss, however, whether the handling of the Norwegian banking crisis was superior or inferior to those in Sweden and Finland. They emphasize that although the details differ, “the effect was the same in the sense that the macroeconomic impacts of the banking collapse were short-lived and the economies resumed growing again quite quickly [...]”

It can be no doubt that the Swedish model of bank rescue, providing guarantees and establishing a separate organization to handle bad loans of the rescued banks, has been considered to be more natural role model for other countries than the Norwegian model. The potential problem with the Norwegian model is that the new government-owned banks could grow at the expense of the banks that did not receive new capital from the government. The government was well aware of this problem, however. In the first years after the banking crisis, the Government Bank Insurance Fund used its power as an owner to force the nationalized banks to focus on cost cutting and consolidation rather than growth and market shares. A closer study of the behavior of the government controlled banks as well as comparative analysis of the banking industries in Norway, Sweden and Finland are important topics for future research.

11 REMAINING ISSUES

In the introduction, we raised a number of questions of which only some have been addressed in previous sections. It is now time to address the remaining ones.

The first question we asked was if the financial deregulation itself was poorly designed and prepared. We have already noted that the paper by Drees and Pazarbasioglu (1998) argues that the governments in all three countries failed “to minimize the adjustment costs in the aftermath of the financial deregulation”. In retrospect, there can be no doubt that the Norwegian government was not prepared for the overwhelming lending boom after the

financial deregulation. Hardly anybody foresaw the strong forces released by the deregulation, and the government therefore did not perceive the need for preparatory measures in time. There seems to be broad consensus that the tax reforms that reduced the favorable tax treatment of interest payments should have been implemented before the deregulation of the credit market, instead of after the lending boom. It is almost impossible to know what difference this would have made to the course of events, but it would certainly have increased the after-tax real interest rate at an earlier stage.

One issue that has been debated intensively in Norway is the policy of government interest guidelines that distorted the structure of interest rates up until 1986, particularly the banks lending rates in relation to the money market rate. This was not, however, the case in Sweden and Finland, and it is therefore not clear how much this mattered for the cause of events in Norway. Moreover, the government also controlled Norges Bank's interest setting before December 1986, the effect of which was an expansionary monetary policy in 1985 and 1986. In retrospect, the responsibility for interest setting should have been given to Norges Bank before the credit market deregulation, but a large majority in the Parliament was in favor of the "low interest policy" and wanted the government to set interest rates, even the money market rate. Even though the exchange rate policy limited the scope for monetary policy in 1984, it would have been possible to increase the interest rate in the fall 1985 and in 1986 to support the krone, which was under speculative pressure. It is also possible that such a monetary policy could have prevented the devaluation in May 1986 and accelerated the disinflation. To what extent a higher interest rate in the last months of 1985 and 1986 could have changed the behavior of banks and households is an open question. In such a scenario the banks would have been forced to borrow more from abroad instead of borrowing from Norges Bank. Since the exchange rate was fixed, however, it is unlikely that Norges Bank could have prevented a boom-bust cycle anyway. The experience of Sweden and Finland suggests that the fixed exchange rate would have triggered a strongly pro-cyclical monetary policy in 1989-1992 even if the fixed exchange rate had been defended successfully in 1986.

The second question we posed in the introduction was the following: Does widespread bank management failure (including moral hazard problems) alone explain the large losses that triggered the banking crisis? In other words, would a banking crisis have happened even under a flexible exchange rate regime that would have permitted a counter-cyclical monetary policy in 1989-1992? It can be no doubt that the banks lost a lot of money due to management

failure, for example losses in branches in other countries.³⁵ In contrast to Sweden and Finland, Norwegian banks were previously prevented from establishing branches in different regions of the country. Those banks that expanded their lending in new regions suffered the greatest losses due to uniformed and inexperienced local branch managers with ambitious growth targets. However, the depressing effects of the high real interest rate on aggregate demand, real estate prices and the profitability of firms must also have been important. The large banking problems in Sweden and Finland after the recession and collapse in asset prices suggest that a significant share of the losses of Norwegian banks in 1991 and 1992 were triggered by the fall in collateral values and the business cycle downturn. Although many banks were in a vulnerable position due to the failure of the expansionist strategies pursued in the 1980s, it was not inevitable that the result would be a systemic banking crisis in the end.

Another issue in relation to the financial deregulation process is the capital adequacy requirements of banks and the role of bank supervision. When the credit market was deregulated, capital requirements were lax, as the government had yielded to strong pressure from the banking industry. From to-days perspective, the requirements were far from adequate, but neither the banks nor the prudential regulation authority perceived the vulnerability of the banks before it was too late. The government's in Norway, Sweden and Finland are criticized by Drees and Pazarbasioglu (1998) for their failure to see the need to strengthen and adapting prudential safety-and-soundness regulations to the new competitive environment. In Norway, the bank supervisory office was merged with the insurance supervisory body in 1986. The new organization (Kredittilsynet) suffered from a shortage of expertise that could match the expertise of the large commercial banks. Furthermore, increased attention was being devoted to the developing capital markets and less devoted to monitoring the banking system. Routine on-site inspections were reduced as more priority was given to document-based supervision. Given its competence and focus, it was therefore hardly possible for Kredittilsynet to influence the behavior of banks during the lending boom.³⁶

³⁵ Another area in which Norwegian banks lost a lot of money was the fish farming industry. The problems in this export industry were not directly related to the business cycle in Mainland-Norway. Many banks did not pay sufficient attention to the risk and failed to charge appropriate risk premiums.

³⁶ In 1987, Kredittilsynet tightened the accounting rules of banks in order to prevent banks from postponing loss provisions. It has later been argued that if old accounting practice had been continued, the old shareholders of Den norske Bank would not have lost their entire capital, and the nationalization could have been avoided. This argument is controversial, however. Even if it is correct *ceteris paribus*, laxer accounting rules could have

It is an open question how much a strong bank supervision authority would have mattered for the lending boom. It is possible, however, that if capital adequacy requirements had been the same as today from the start, the extent of the Norwegian banking crisis could have been much smaller, or perhaps avoided. Still, the welfare cost of the boom-bust cycle could not have been avoided simply by having better capitalized banks at the time of financial deregulation.

12 CONCLUSIONS

In the introduction, we argued that the most important question to ask is why the Norwegian economy was so unstable in the 1980s and beginning of the 1990s. A reasonable hypothesis, given the developments in Sweden and Finland as well as in East Asia in the late 1990s, is that the main cause was the combination of a fixed exchange rate and financial deregulation.³⁷ This policy forced the Nordic central banks to keep very high real interest rates at time when the Nordic economies needed demand stimulus to fight recession. In addition, the postponement of many problems in the 1970s involved enormous challenges for Norwegian economic policy at the beginning of the 1980s. Economic policy mistakes in the 1970s, OPEC II, and the international downturn had increased the rate of inflation to 13 percent at the beginning of the 1980s, and the rate of unemployment was increasing as well. It was hardly possible to bring inflation down to a low level without a strong cyclical downturn.

Norway was hit by several severe asymmetric shocks in the 1980s. First, the liberalization of the credit market released a credit supply shock and a lending boom. Then the oil price shock in 1986 triggered a fiscal policy restraint and a policy of gradual disinflation. And finally, the German interest rate shock made monetary policy very pro-cyclical in 1989-1992.

Another important question is why the deregulation of the credit market triggered such a large credit supply shock in Norway. We think there are several factors that contribute to explain this. First, the credit regulation policy had lost its legitimacy among the large banks, which had been very focused on fast growth in the beginning of the 1980s. It is also important that the deregulation of the credit market occurred rather quickly, increasing the degree of

disguised the underlying problems for many bank managements and postponed the restructuring and cost-cutting efforts of the Norwegian banking industry.

³⁷ Wohlin (1998) argues that the root of the Swedish banking crisis was the fixed exchange rate policy after the financial deregulation.

competition in a short period of time. At the same time, credit rationing of households had been quite extensive, and the previous deregulation of housing prices had already increased housing wealth considerably. The willingness of households and firms to increase borrowing was therefore quite large.

The most striking difference between Norway on the one hand and Sweden and Finland on the other is the timing and depths of the economic crisis and banking crisis. The Norwegian economy did not plunge into a depression as the two other countries. It was hit by a cyclical downturn in 1988-1989, but the recession and decline in real estate prices did not trigger a banking crisis at once. However, for several years after the initial downturn, asset prices continued to decline, unemployment increased, and there was no sign of a recovery. The timing of events suggests that the strongly pro-cyclical monetary policy after the initial cyclical downturn was instrumental for the weak macroeconomic performance, the sustained fall in asset prices and the banking crisis. In the case of Sweden and Finland, the banking crisis happened in the midst of a severe economic crisis, and less than a year after the Norwegian banking crisis. The bust came much more quickly in Sweden and Finland, and asset prices declined more rapidly. Since all the three countries were hit by the same interest rate shock from Germany, it is likely that this shock was crucial in explaining why the banking crises in all three countries happened at about the same time.

Why did Norway get away with a milder economic downturn and a smaller banking crisis than Sweden and Finland? Probably the reasons for the relatively stronger macroeconomic performance of the Norwegian economy are also the reasons for the less severe banking crisis. One factor is the oil price shock in 1986 that prevented a longer-lasting boom and slowed down asset prices, borrowing, consumption and investment years before the interest rate shock. Sweden and Finland did not receive a corresponding “early warning” as the oil price shock represented to Norway. On the contrary, the oil price shock improved their terms of trade and paved the way for an international business cycle upturn that stimulated the booms in both Sweden and Finland. Another factor was the large increase in oil production that strengthened the Norwegian current account and government revenues after 1989. This permitted a more expansionary fiscal policy during the banking crisis. In Sweden and Finland, fiscal policy was expansionary during the boom, and after the bust, the room for fiscal stimulus was small. Still, fiscal policy was considerable more restrictive (procyclical) during the crisis in Sweden than in Finland.

Looking back on the economic policy and events in 1980s and early 1990s, it is easy to see that the Norwegian governments did not get the timing right. Given the political constraints and the information available when the policy decisions were made, however, it is hard to imagine how any government could have got the timing right. Postponing a financial deregulation was not an attractive option either. We think that the main problem was that monetary policy was tied to defend the fixed exchange rate and therefore pro-cyclical in the boom as well as in the recession. The German monetary policy after the unification was really bad luck for all the Nordic countries. It is difficult to imagine that an active fiscal policy with the right timing could have prevented a boom-bust cycle in Norway as long as the exchange rate was fixed. The macroeconomic shocks were simply too large for counter-cyclical fiscal policy to succeed when monetary policy was strongly pro-cyclical. Under a flexible exchange rate regime, however, monetary policy could have been used along with fiscal policy to counteract the boom-bust cycle. Still, the challenges for macroeconomic policy would have been overwhelming.

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Table 1: Bank loan market shares of commercial banks in Norway, Sweden and Finland (loans in percent of total year-end assets).

Year	Norway ^a	Sweden ^b	Finland ^c
1980	56.5	66.3	55.4
1985	57.8	71.7	58.8
1990	59.3	72.9	66.6
1995	58.8	93.2	69.8

^a There are two types of Norwegian banks, commercial banks and savings banks.

^b Before the banking crisis, three types of Swedish banks existed, commercial banks, savings banks, and cooperative banks. The cooperative banks disappeared as a result of the banking crisis. In 1990, the market share of cooperative banks was 5.1 percent.

^c There are three types of Finnish banks, commercial banks, savings banks, and cooperative banks. The market share of savings banks dropped from 17.7 percent in 1990 to 3.9 percent in 1995 as a result of the banking crisis. In 1995, the market share of cooperative banks was 26.3 percent.

Table 2: Household income and consumption (annual growth in percent), Norway, 1984-1992.

Year	Real income before net taxes	Real disposable income	Household consumption	Consumption of goods	Rate of saving (percent)
1984	3.5	4.0	3.3	2.6	5.1
1985	3.1	2.3	9.9	12.7	-1.9
1986	4.0	2.3	5.0	4.1	-4.7
1987	1.7	-0.4	-0.9	-3.7	-4.7
1988	-0.3	1.7	-2.2	-5.2	-1.3
1989	-2.3	1.9	-0.7	-2.2	1.1
1990	0.1	2.1	0.6	1.4	2.2
1991	1.8	3.4	1.3	1.4	4.3
1992	2.4	3.9	2.2	1.3	5.9

Source: National accounts.

Table 3: Difference between the money market interest rate (NIBOR) and the Taylor rate (forward), percentage points (annual averages of quarterly observations)

Year	NIBOR	Taylor rate (forward)	Difference
1984	12.9	11.5	+1.4
1985	12.5	12.6	-0.1
1986	14.3	15.6	-1.3
1987	14.7	16.1	-1.4
1988(I-II)	14.0	14.6	-0.6
1988(III-IV)	13.1	11.2	+1.9
1989	11.4	8.3	+3.1
1990	11.6	8.2	+3.4
1991	10.6	7.7	+2.9
1992	11.8	5.3	+6.5
1993	5.8	4.5	+1.3

Source: Sveen (2000).

Table 4: The Norwegian government's rescue of the banking sector: Fiscal cost and revenue. Present values per December 31, 2001 (billion kroner)

Government capital injections:	Fiscal cost of investment ^a	Revenue	Net revenue
Den norske Bank	20.89	31.54 ^b	10.65
Christiania Bank	17.36	19.24	1.88
Fokus Bank	2.58	2.59	0.01
Sparebanken NOR	2.05	3.02	0.97
Other banks	0.6	0.43	-0.17
1. Sum	43.48	56.82	13.34
Other fiscal costs:	Other fiscal costs	Revenue	Net revenue
Norges Bank's subsidies and losses	5.61	0.06	-5.55
Support to the Savings Bank's Deposit Insurance Fund	1.89	-	-1.89
Administration	0.1	-	-0.1
2. Sum	7.6	0.06	-7.54
3. Total (the sum of 1. and 2.)	51.1	56.9	5.8
3. in percent of GDP in 2001	3.4	3.8	0,4
4. Total fiscal costs and revenue (risk free interest rates)	39.7	53.4	13.7
4. in percent of GDP in 2001	2.6	3.5	0.9

^a A risk premium of four percentage points has been added to the risk free interest rate.

^b Including the market value of the government's shares per 31.12.2001, 14.8 billion kroner.

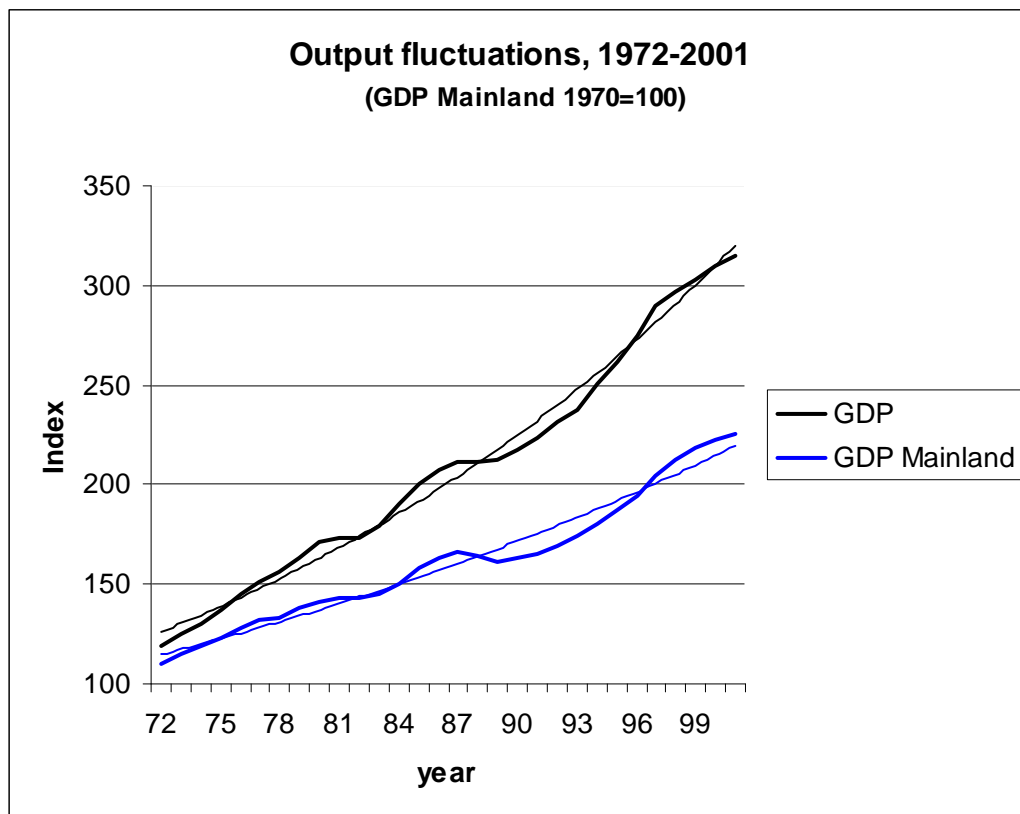
Source: Moen (2003).

Table 5: Real lending, real interest rate and the real economy, Norway, 1990-1995 (percent)

Year	Real domestic credit growth	Real growth of bank lending	Real after-tax interest rate	Growth in relative housing price	Real GDP growth	Real Mainland GDP-growth
1990	1.6	3.9	4.6	-8.2	2.0	1.0
1991	-3.7	-5.0	5.3	-10.6	3.1	1.4
1992	-5.8	-5.9	7.3	-7.4	3.3	2.3
1993	-4.6	-2.0	5.4	3.7	2.7	2.8
1994	-0.3	4.5	4.5	9.4	5.3	3.8
1995	1.4	6.1	3.1	4.5	4.4	3.5

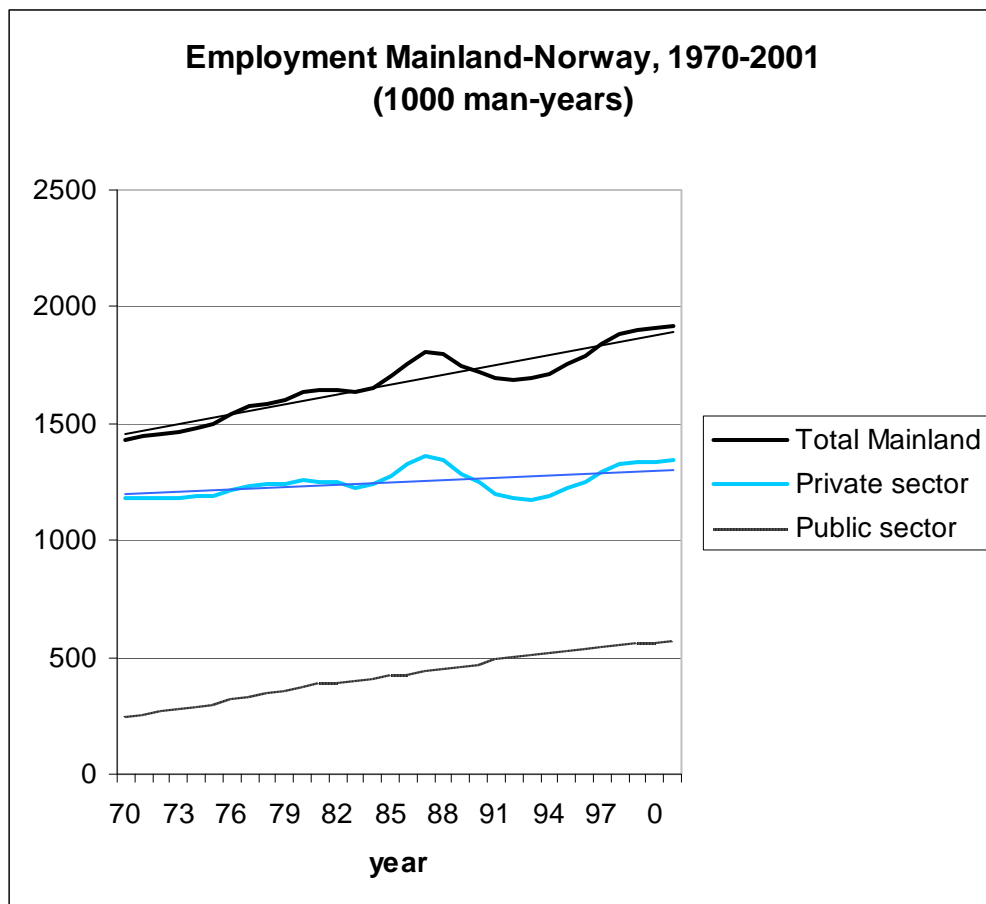
Source: National accounts and Norges Bank.

Chart 1: Output fluctuations in Norway, 1972-2001



Source: National accounts. The trend curves are exponential.

Chart 2: Employment, Mainland-Norway, 1970-2001



Source: National accounts. The two trend curves are linear.

Chart 3: The critical years

Year	84	85	86	87	88	89	90	91	92
Finan. sector/ wage policy	Fin. de-reg.	Fin. de-reg.	De-val.		wage reg.	wage reg.	Ecu	Bank. crisis	Curr. crisis
Mon. pol. ^a	⇒	↑↑	↑↑	↑↑	⇒	↓↓	↓↓	↓↓	↓↓
Fisc. pol. ^b	⇒	↑↑	↓↓	↓↓	↓↓	↓↓	↓↓	⇒	↑↑
Asset prices ^c	↑↑	↑↑	↑↑	↓↓	↓↓	↓↓	↓↓	↓↓	↓↓
Business cycles ^d	↑↑	↑↑	↑↑	⇒	↓↓	↓↓	↓↓	↓↓	↓↓
Un-empl. ^e	3.2	2.5	1.8	1.5	2.3	3.8	4.3	4.7	5.4
Inflation (CPI)	6.3	5.7	7.2	8.7	6.7	4.5	4.1	3.4	2.3
Curr. acc. ^f	+5.4	+4.8	-6.2	-4.8	-4.1	-0.1	+2.5	+3.7	+3.5
Year	84	85	86	87	88	89	90	91	92

^a The directions of the arrows indicate whether monetary policy is too restrictive (downward), appropriate (horizontal) or too expansionary (upward). A Taylor interest rate defines the appropriate money market rate of interest, see Chart 13 below.

^b The arrows indicate impulses from fiscal policy (general government revenues and expenditure), see Johansen and Eika (2000) for the period 1989-1992. Period 1984-1988: Annual national budgets.

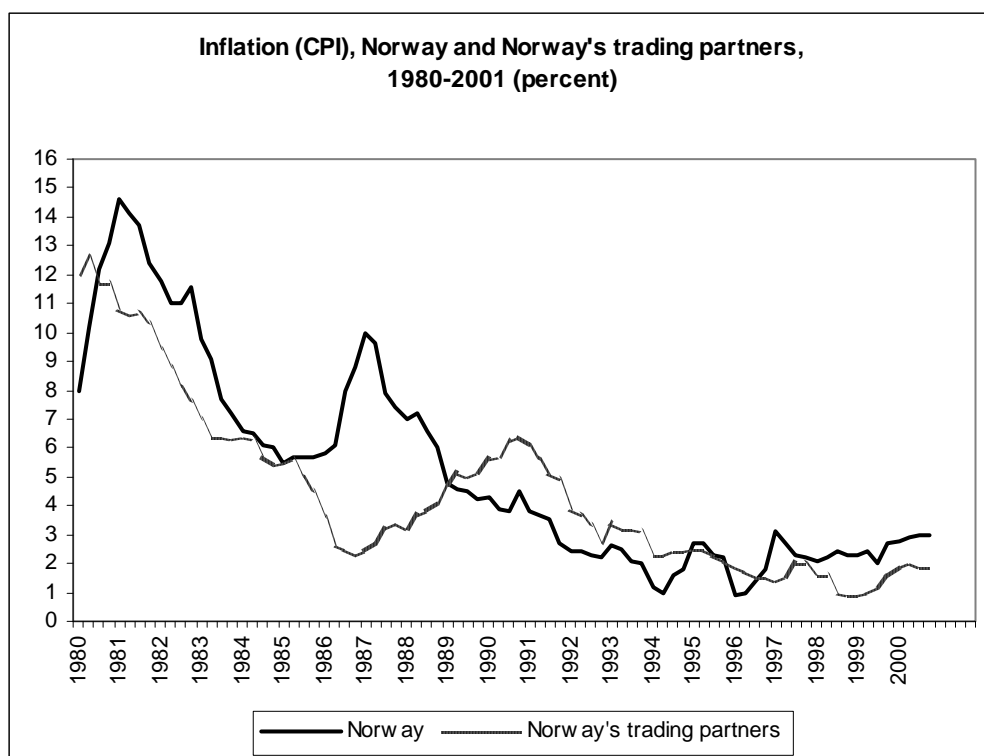
^c Change in relative price of non-residential real estate, see Chart 14 below.

^d Arrows indicate cyclical downturns and upturns in Mainland GDP, see Johansen and Eika (2000). Horizontal arrows indicate approximately trend growth.

^e Registered unemployment, not including workers in labor market programmes.

^f In percent of nominal GDP.

Chart 4: Inflation (CPI), Norway and Norway's trading partners, 1980-2001.



Source: National Budget 2001.

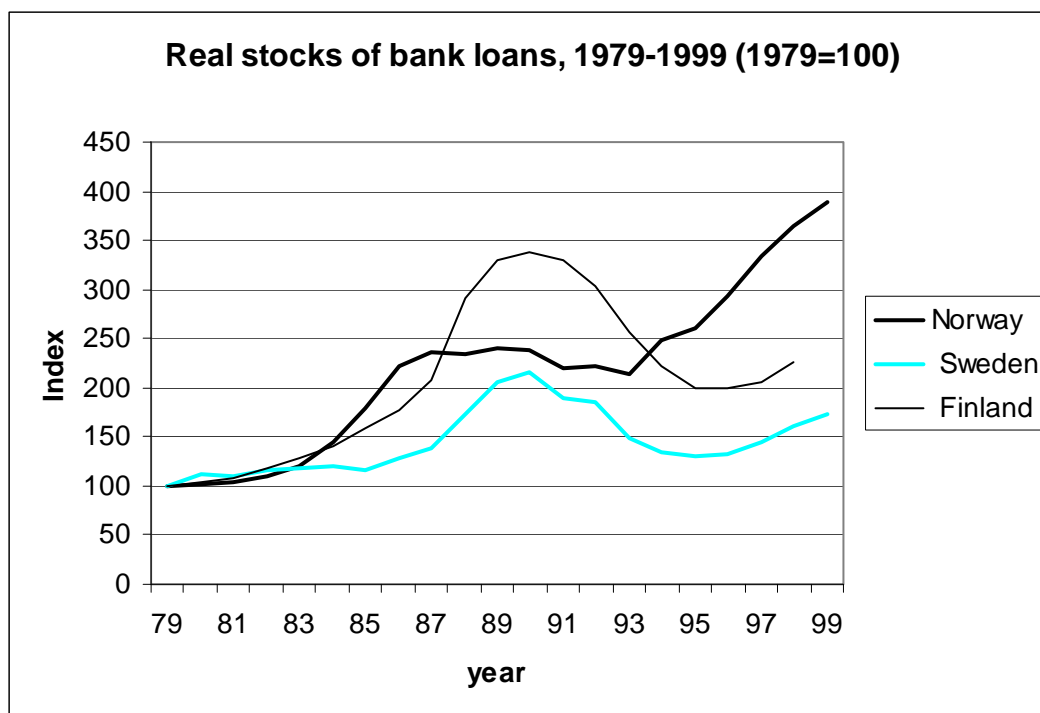
Chart 5: The real after-tax interest rate in Norway, 1967-2001 (quarterly data).



Note: Mortgage loans. Marginal tax rates for average income.

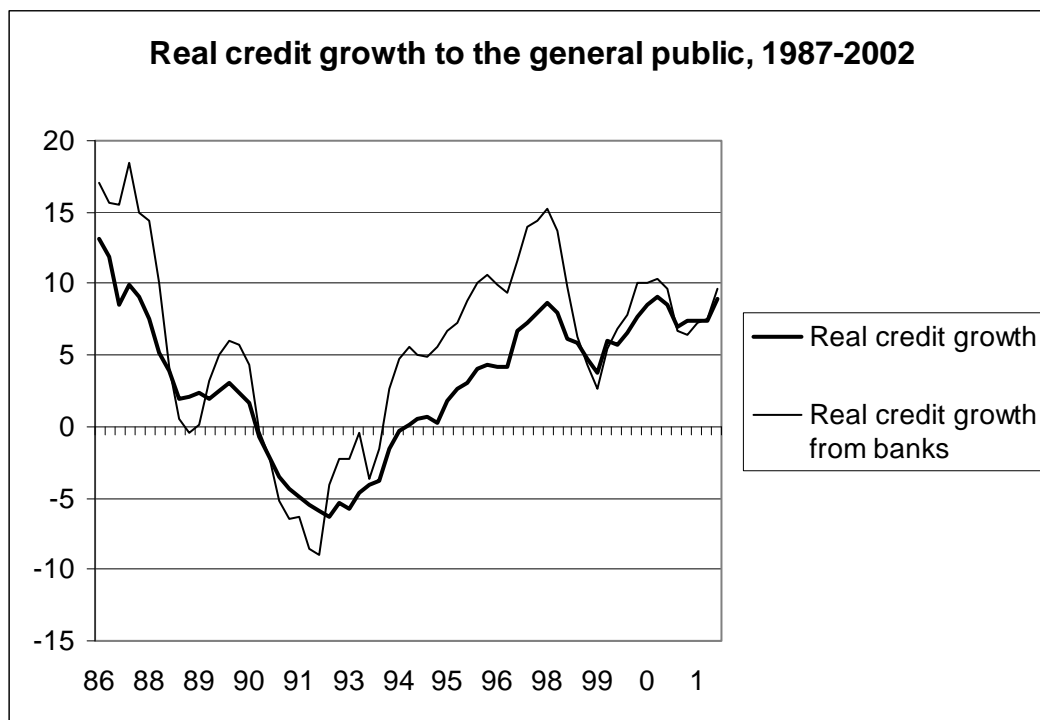
Source: Central Bank of Norway.

Chart 6: Real stocks of bank loans in Norway, Sweden and Finland, 1981-1996 (1979=100)



Source: OECD.

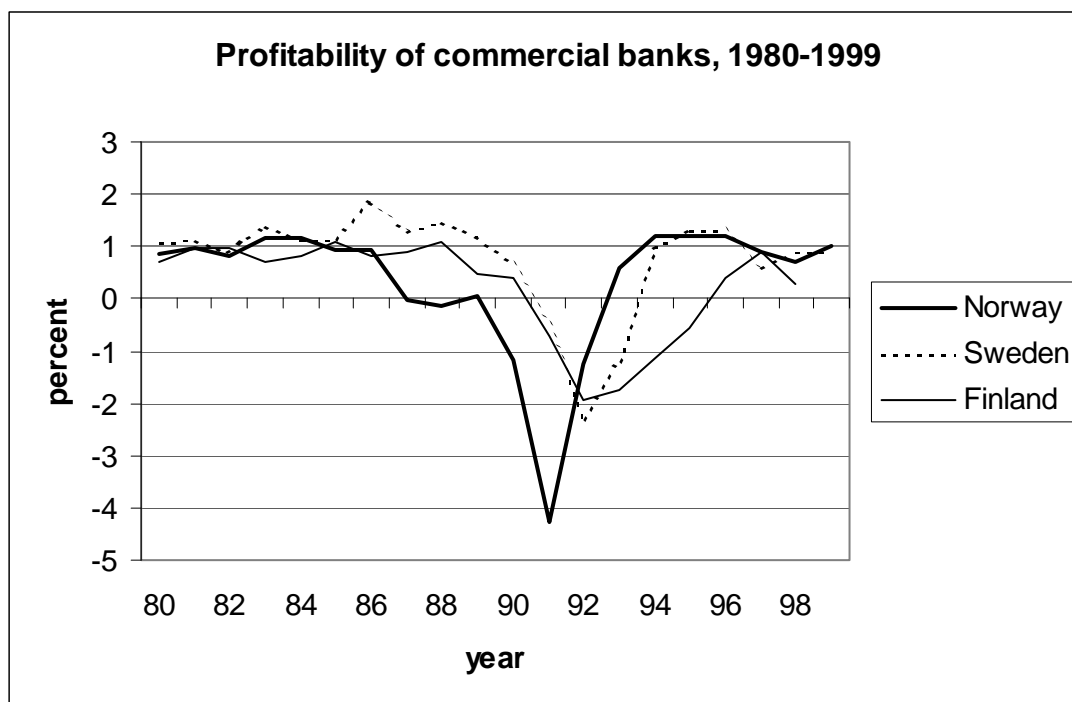
Chart 7: Real domestic credit growth, Norway, 1987-2002 (percent per year)



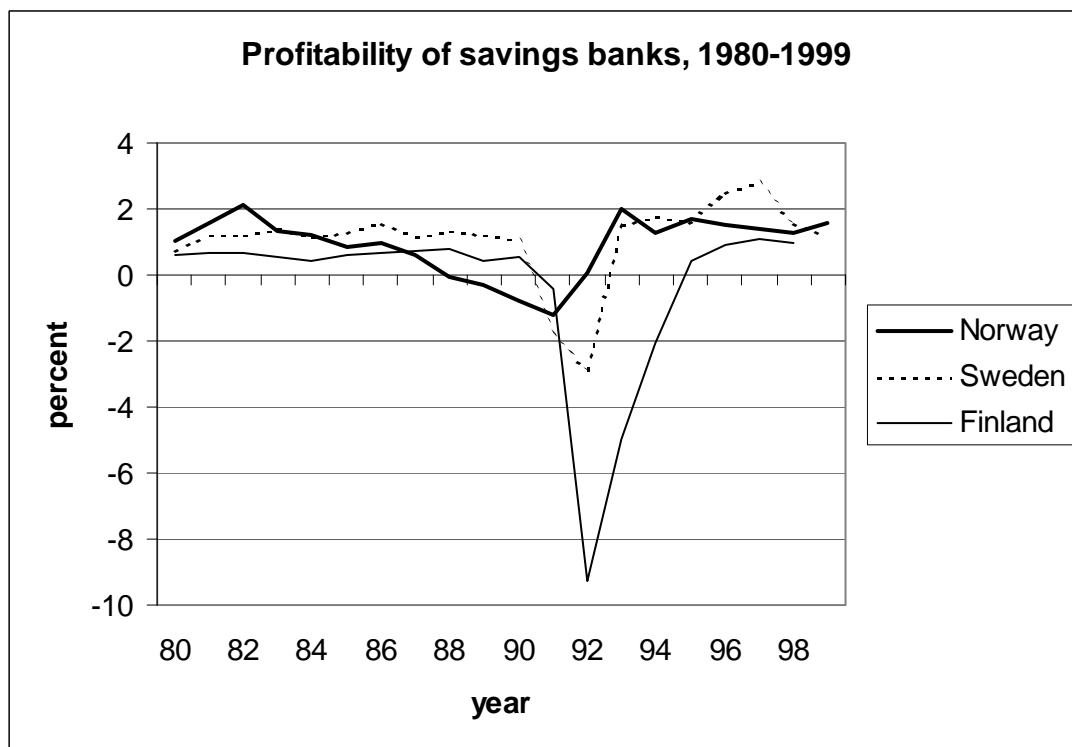
Source: Norges Bank. Loans deflated by the CPI. Growth over past 12 months.

Chart 8: Profits before tax in Norwegian, Swedish and Finnish banks, 1980-1999 (in percent of total average assets)

8.A Commercial banks

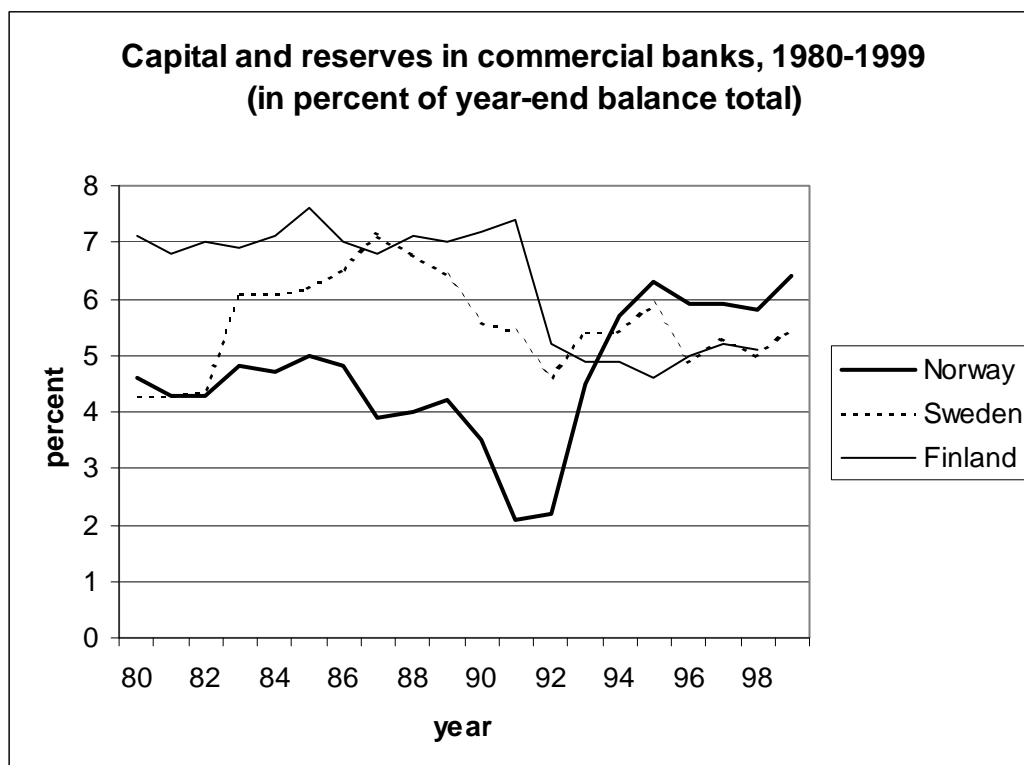


8.B Savings banks



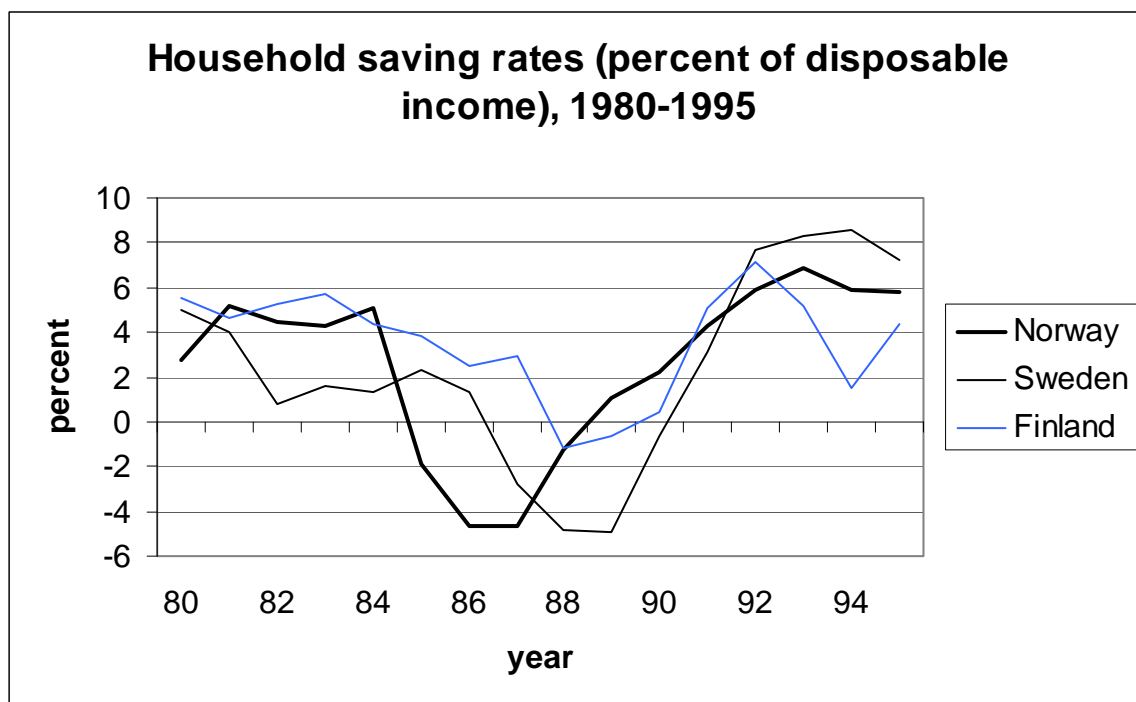
Source: Period 1980-1994: Drees and Pazarbasioglu (1998). Period 1995-1999: OECD.

Chart 9: Capital and reserves in Norwegian, Swedish and Finish commercial banks, 1980-1999 (in percent of year-end balance total).



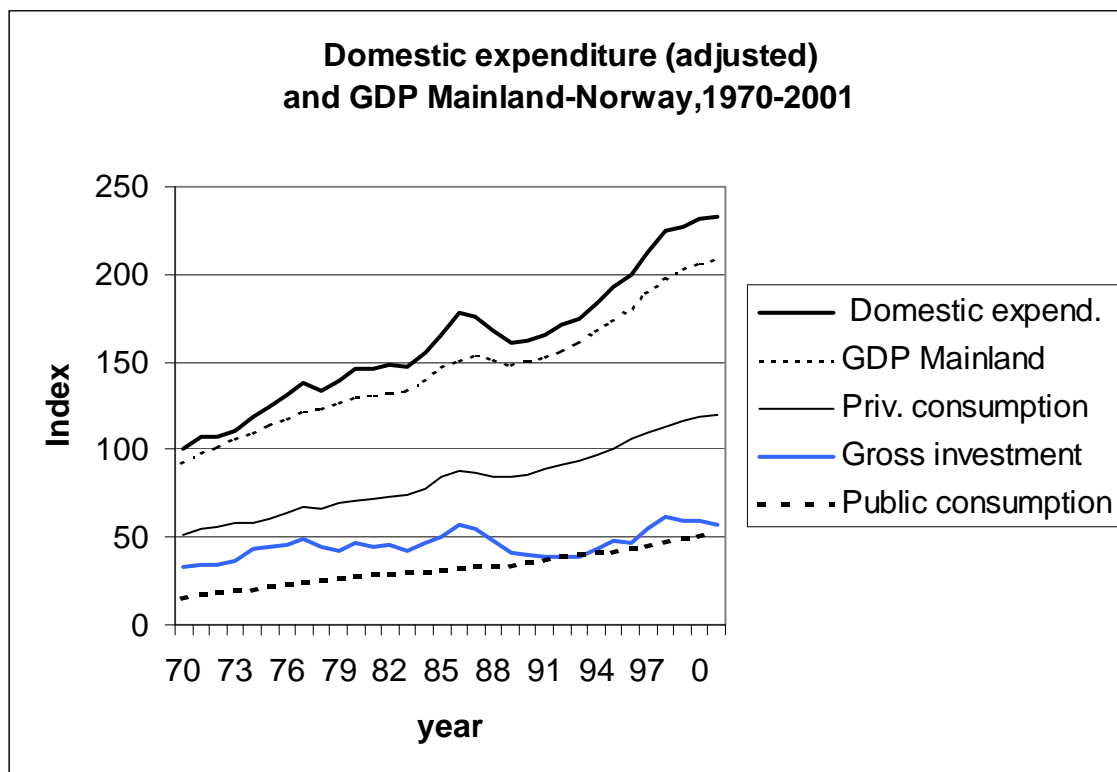
Source: OECD.

Chart 10: Household saving rates in Norway, Sweden and Finland (percent of disposable income), 1980-1995.



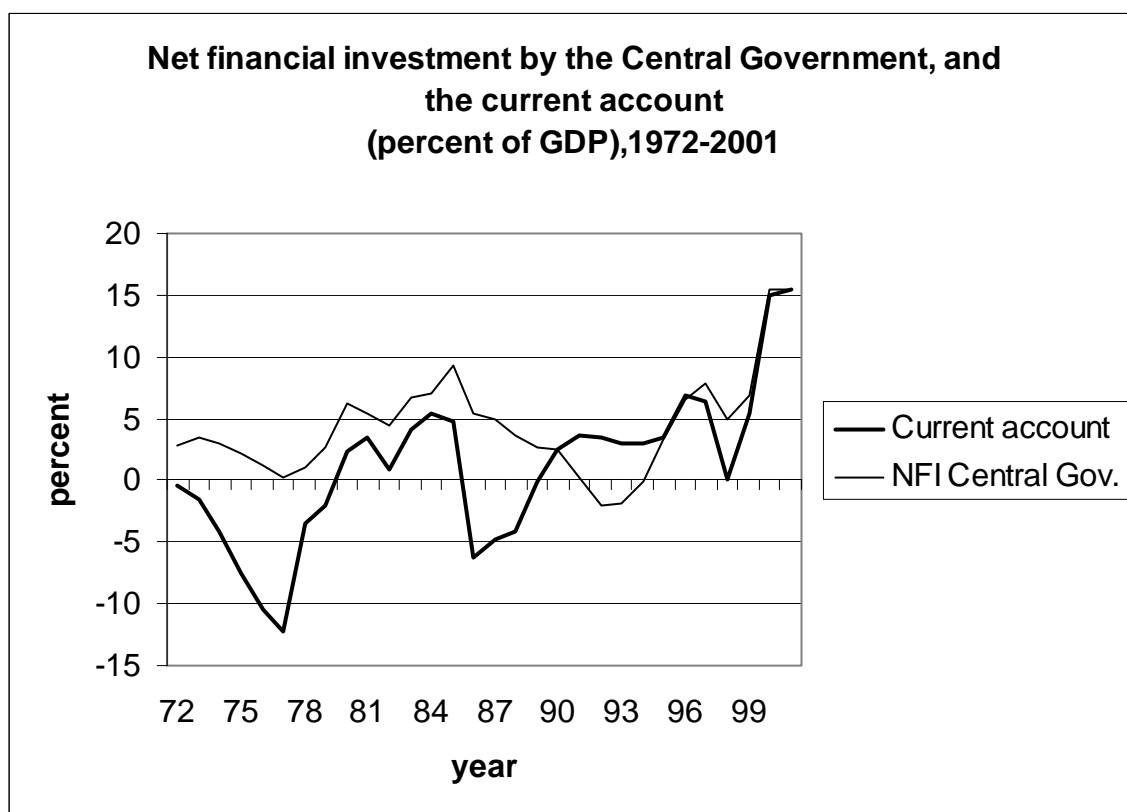
Source: National accounts.

Chart 11: Domestic expenditure (adjusted) and GDP Mainland-Norway, 1970-2001
(Domestic expenditure 1970=100).



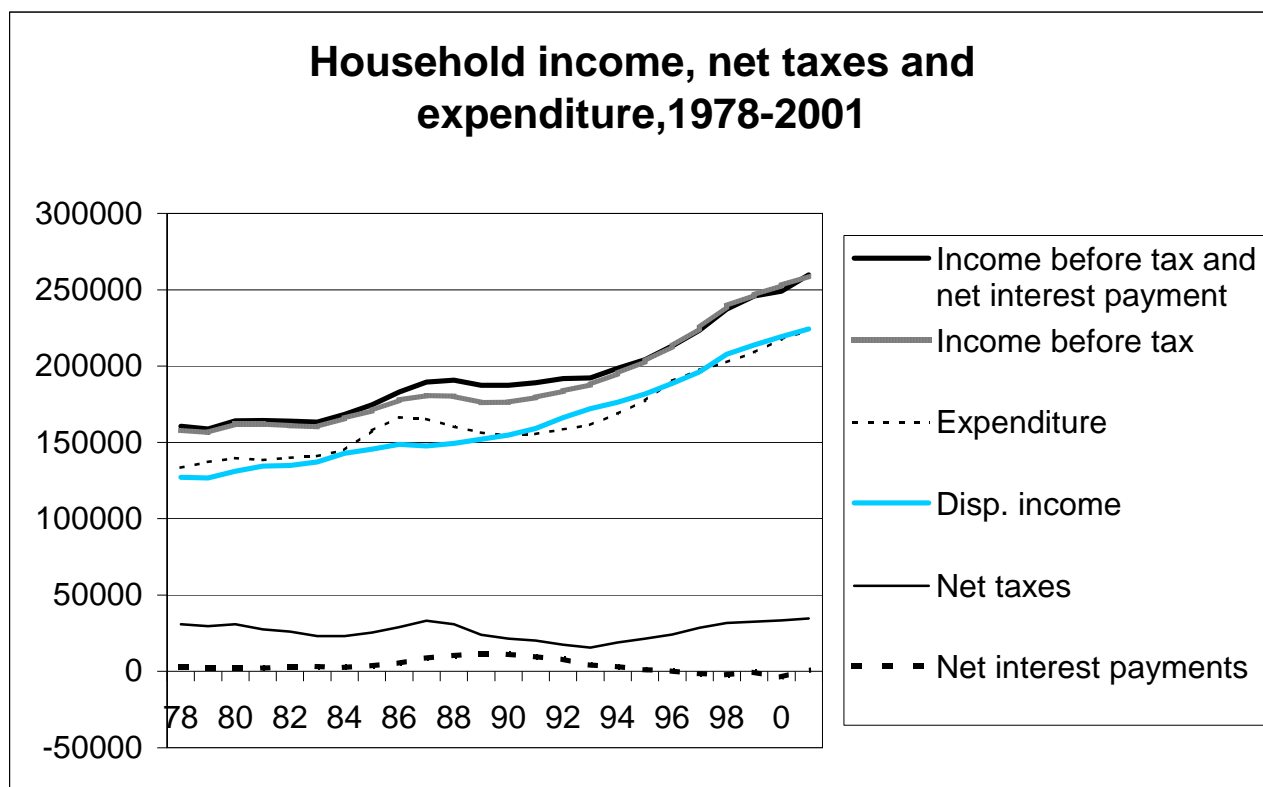
Source: National accounts. Imputed consumption of real capital services has been excluded from private consumption, public consumption and domestic expenditure. All series have been deflated by the price index for domestic spending of goods and services.

Chart 12: Central government surplus and the current account, Norway, 1972-2001 (percent of GDP).



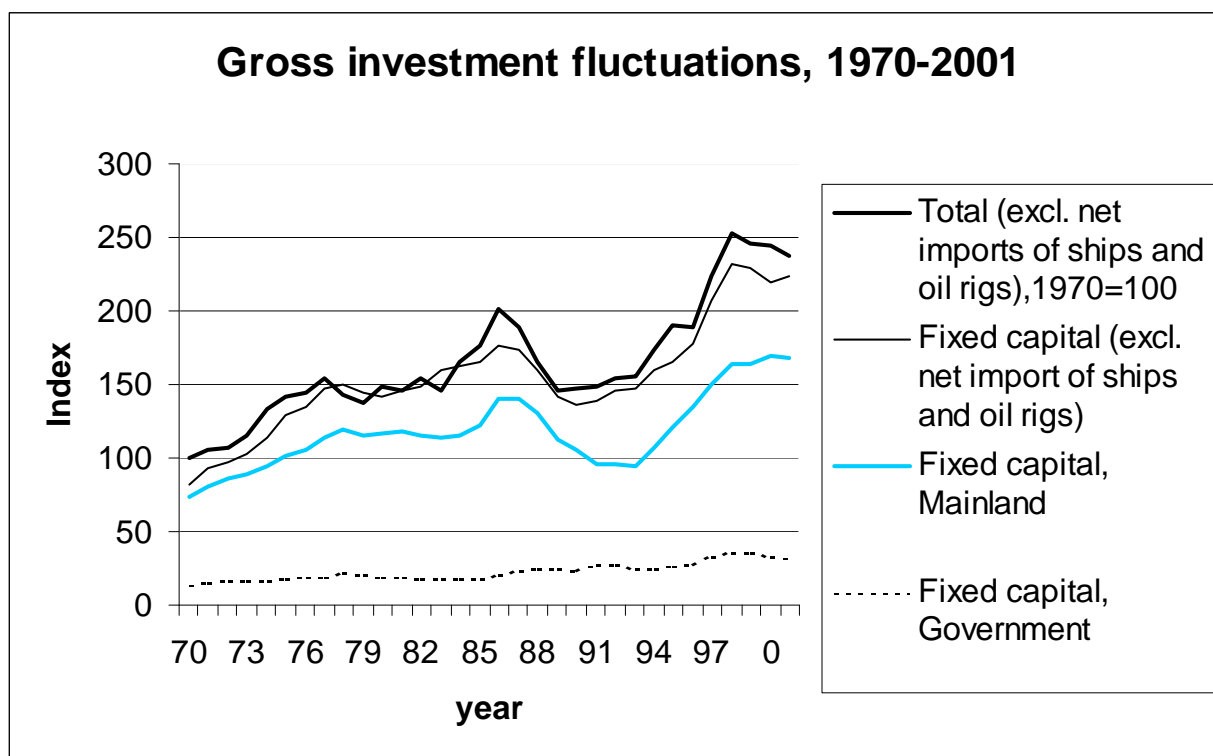
Source: National accounts.

Chart 13: Household income, net taxes and expenditure, Norway, 1978-2001 (thousand 1978-kroner).



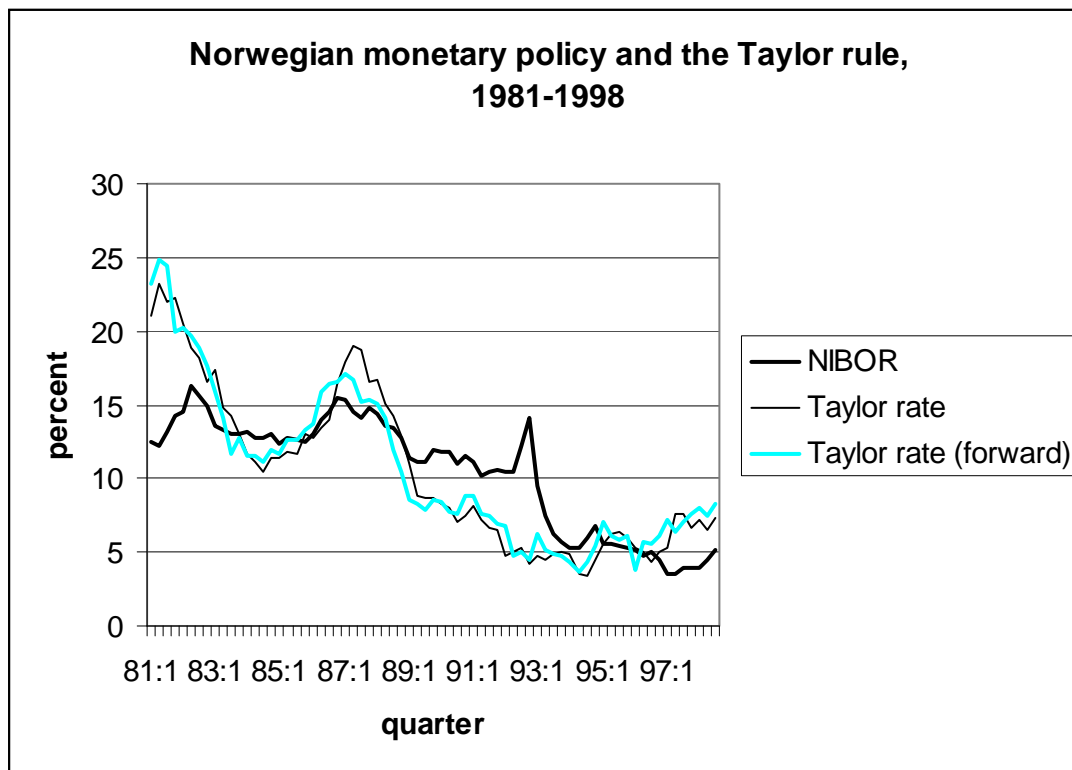
Source: National accounts
All series have been deflated by the price index for private consumption.

Chart 14: Gross investment fluctuations, Norway, 1970-2001



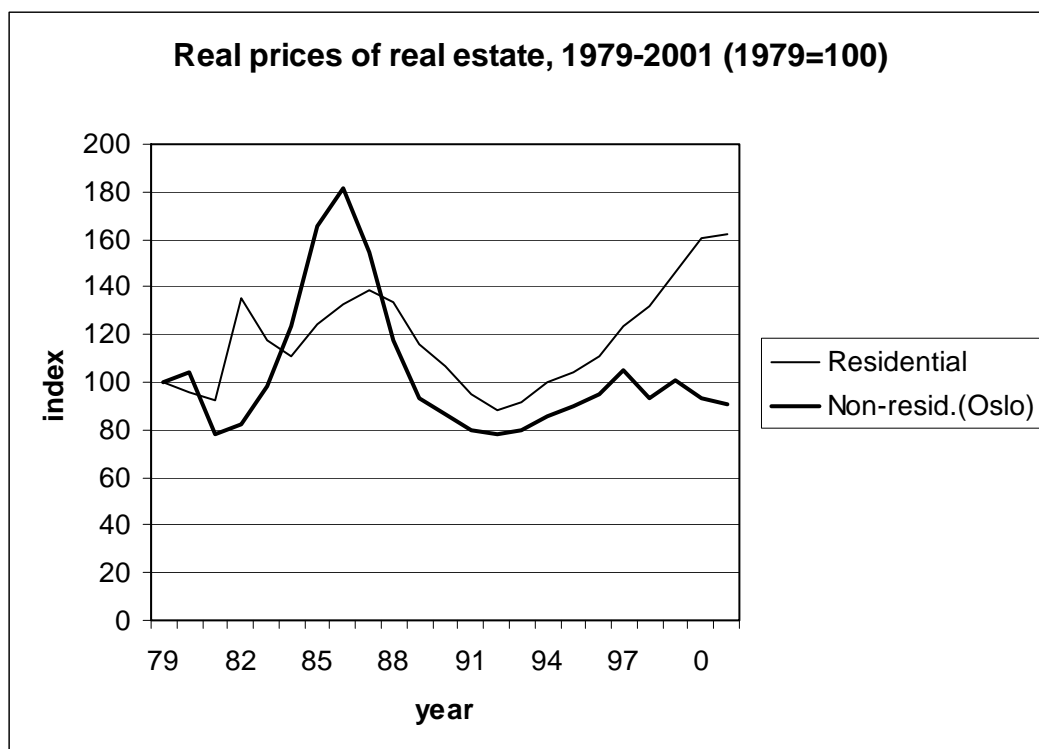
Source: National accounts. All series have been deflated by the price index for Mainland gross investment in fixed capital.

Chart 15: Money market interest rate (NIBOR) and Taylor interest rates, 1981-1998.



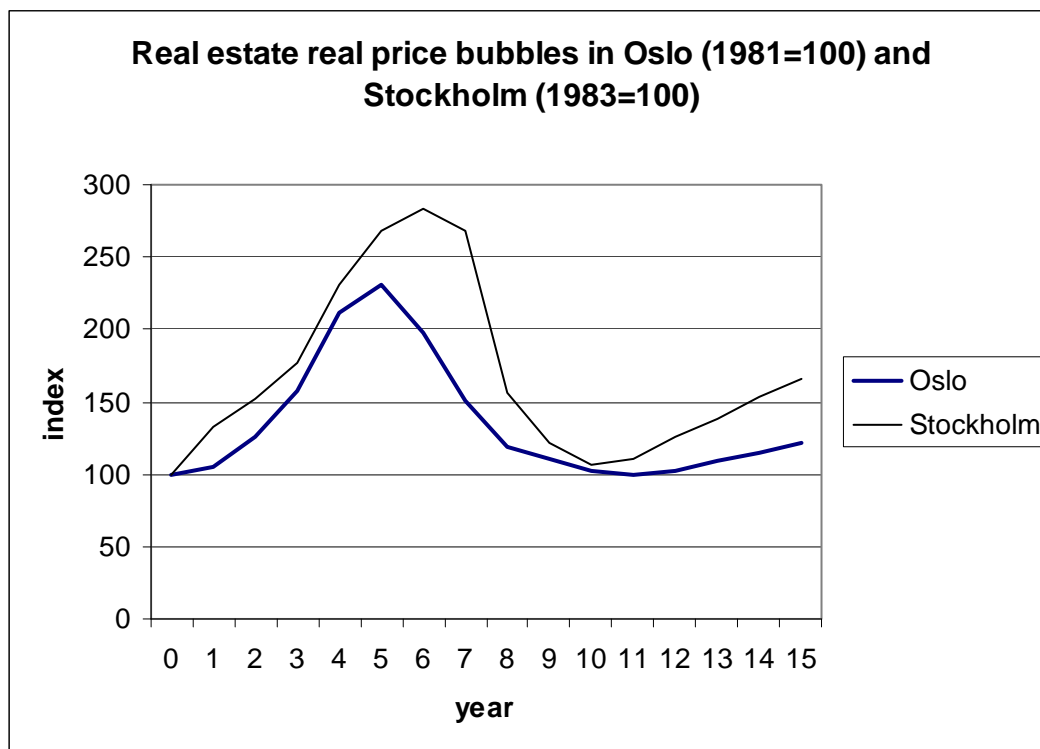
Source: Sveen (2000). The Taylor rate (forward) is based on data for expected inflation replacing actual inflation.

Chart 16: Real prices of real estate, Norway, 1979-2001 (1979=100).



Source: Norges Bank. The series have been deflated by the CPI.

Chart 17: Real estate asset price bubbles in Oslo (1983=100) and Stockholm (1985=100). Nominal prices (in local currency) on non-residential real estate.



Source: OPAK (Norway) and Englund (1999) (Sweden).